

**April 3, 2015 City of Meridian Response to Request for Information**

**Attachment A: Figures from 2010 Report**



#### Legend

- Flow Monitors
- Rain Guages
- Streets
- Meter Basins



0 4,000  
Feet

City of Meridian, MS  
Wastewater Master Plan



Figure 4.1

STUDY AREA

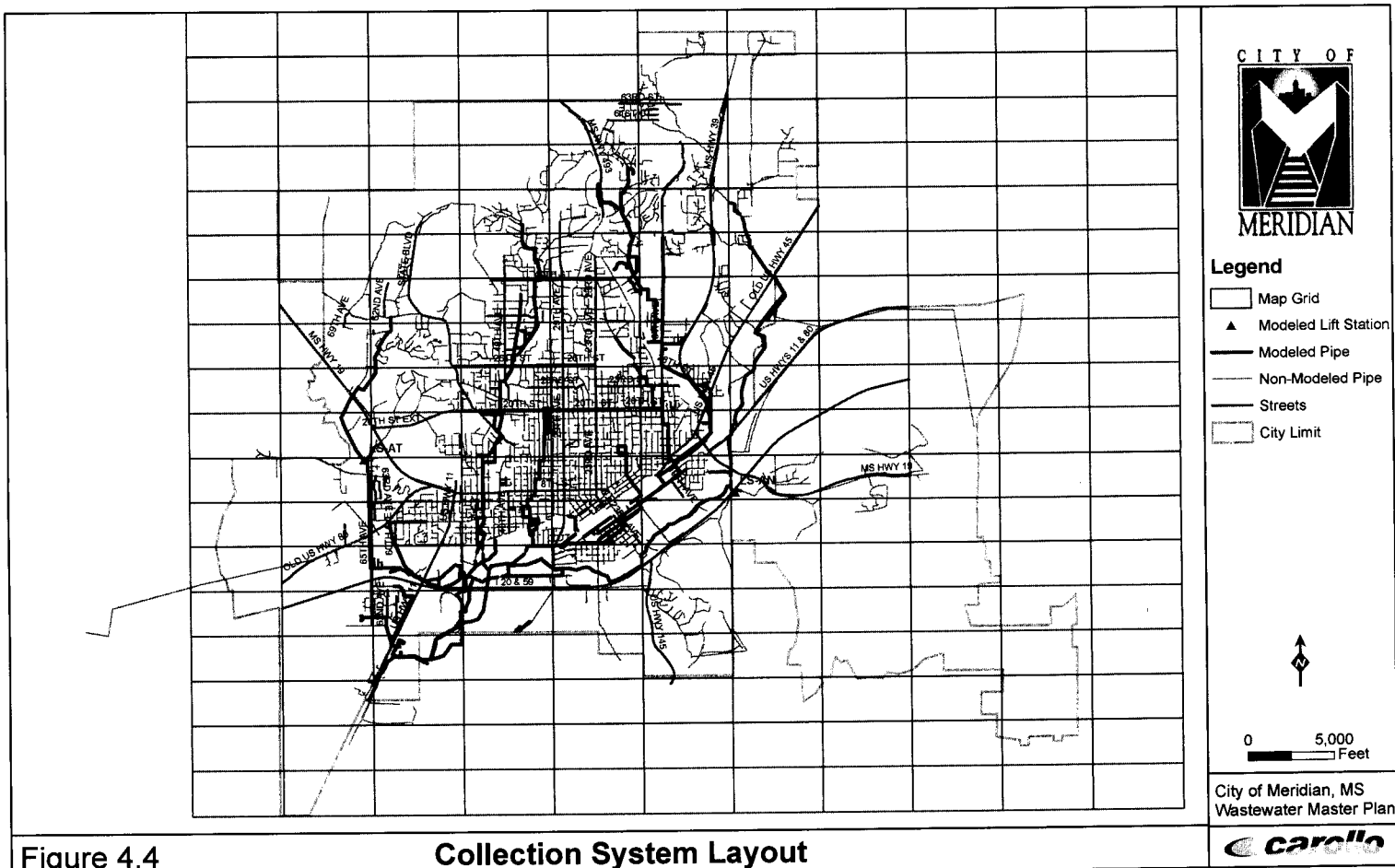
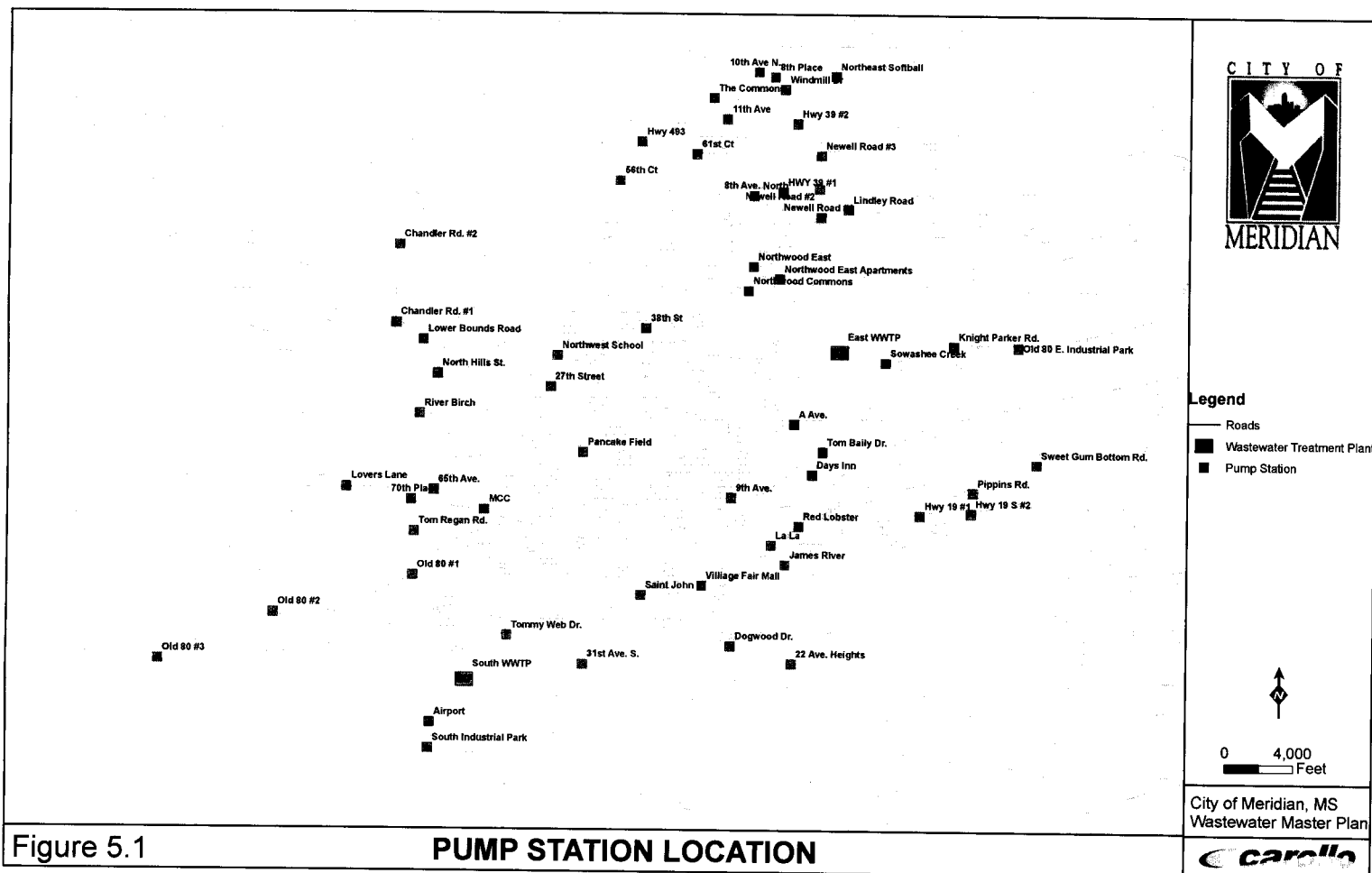


Figure 4.4

Collection System Layout



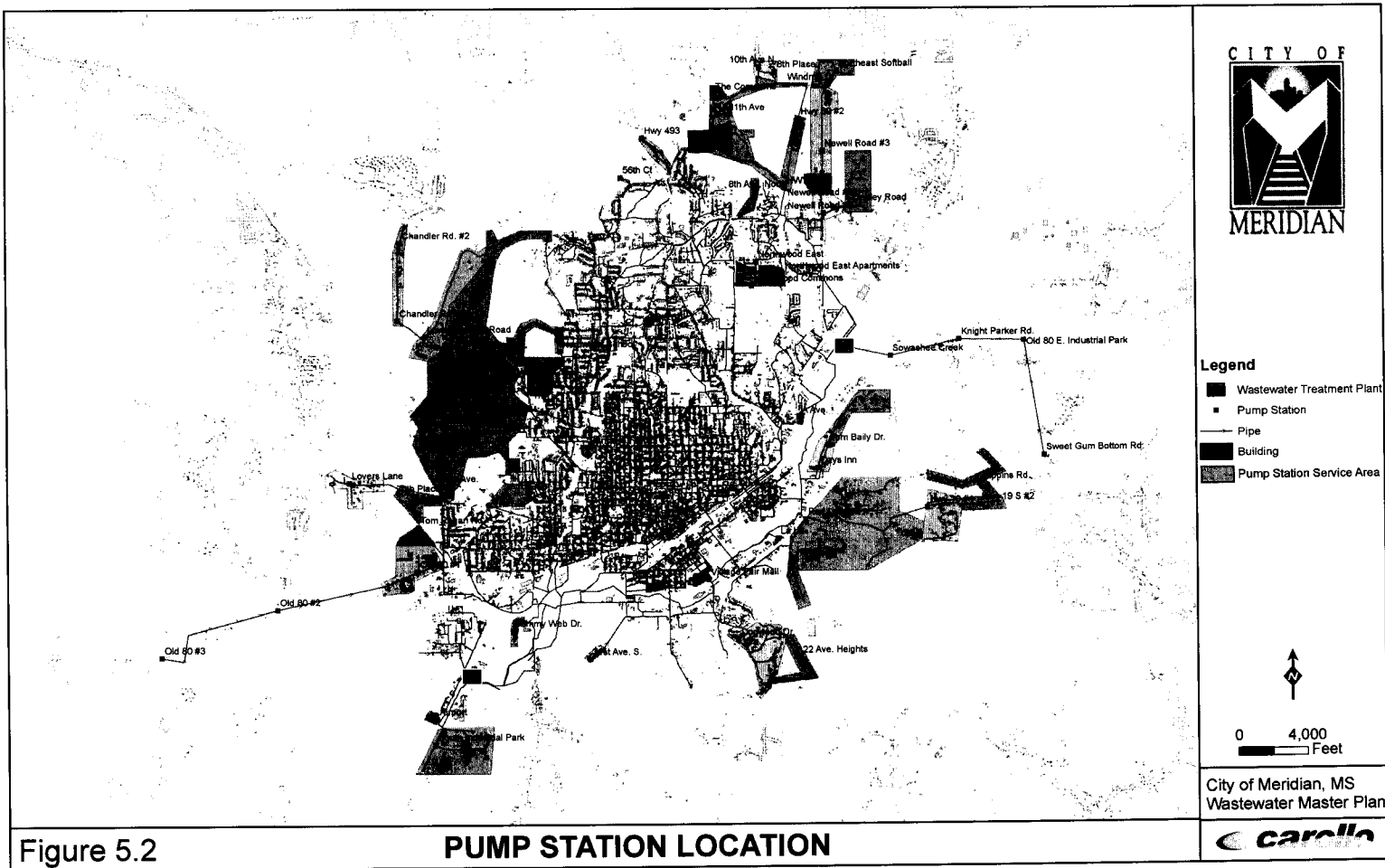
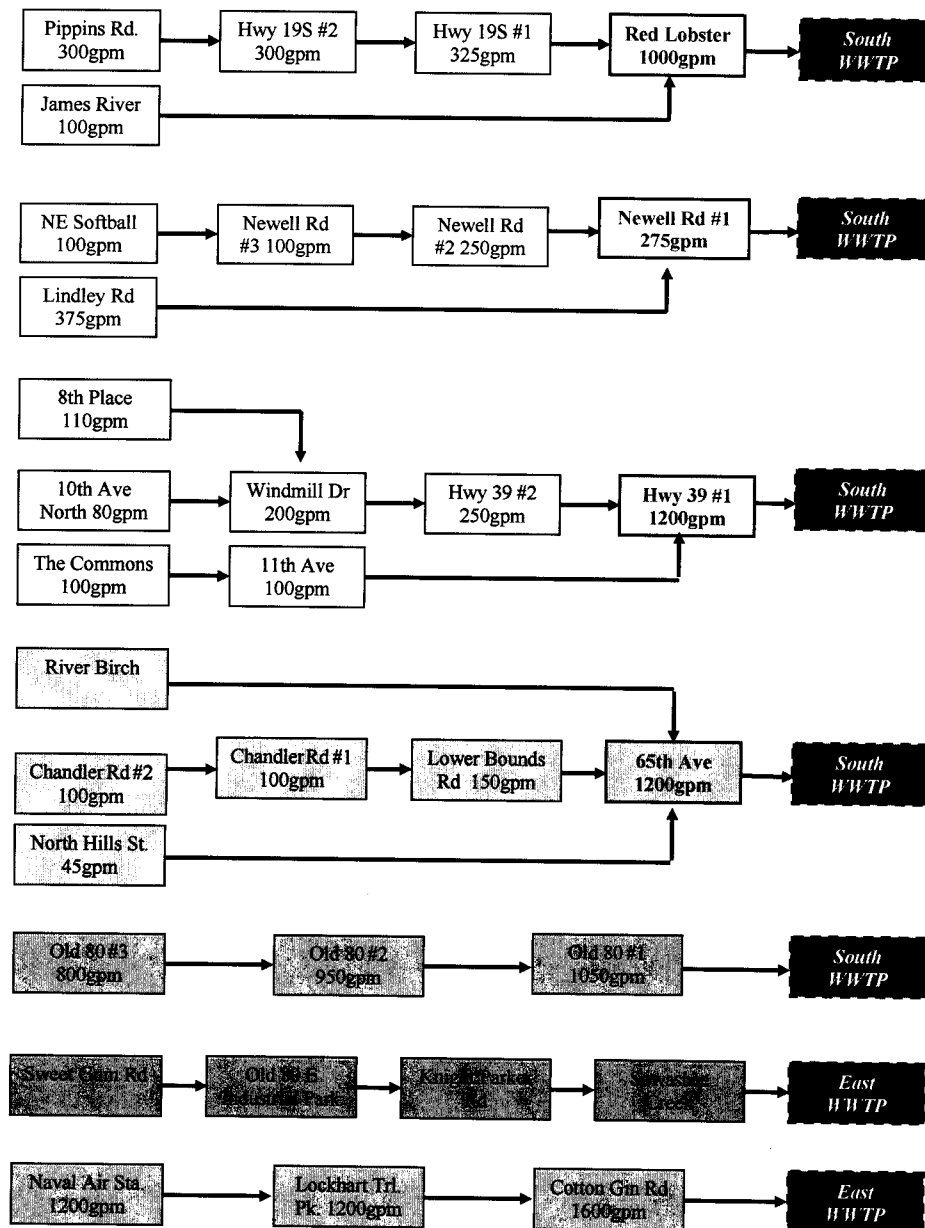


Figure 5.2

## PUMP STATION LOCATION

Figure 5.3 Lift Station Dependency Diagram



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**April 3, 2015 City of Meridian Response to Request for Information**

**Attachment B: Table 5.1 from 2010 Report**

## PUMP STATION EVALUATION

Carollo Engineers evaluated the City's existing sewer pump stations. The City currently maintains and operates 61 sewer pump stations including 3 pump stations serving the Naval Air Station. Activities performed during the pump station evaluation include:

1. Development of a pump station asset database.
2. Updates to the City's GIS database including new force main locations, pump station locations, and pump station service areas.
3. Determination of pump station flow dependency.
4. Hydraulic modeling of flows to each pump station.
5. Assessment of pump station operational capacity.

### 5.1 PUMP STATION ASSET DATABASE

A pump station asset database was developed as part of the City's Wastewater Master Plan. The City's preliminary list of pump stations was modified according to existing City records and interviews with City staff. This process involved the removal of some pump stations from the City's pump station list and addition of others. The current pump station inventory includes information that was readily available from City records and information gathered from staff testimony. Pump station inspections were not part of the scope of this project, so the pump station database is not comprehensive. The database will benefit from information gathered during future pump station inspections by City staff or future studies. In all, the City is responsible for 61 pump stations including 3 pump stations serving the Naval Air Station. A summary of the updated pump station inventory is shown in Table 5.1 with the full inventory located in Appendix C.

<b>Table 5.1      Summary of Pump Station Inventory</b> <b>Wastewater Collection System Rehabilitation Program</b> <b>City of Meridian, MS</b>				
<b>PS No.</b>	<b>PS Name</b>	<b>Location Description</b>	<b>City's File Ref</b>	<b>GIS Ref ID</b>
1	8th Ave. North	8th Ave.	M41	LS-BT
2	8th Place	Windmill Sub Division	M15	LS-CG
3	9th Ave.	5th St. & 9th Ave. (Near Front St. and 10th Ave)	M25	LS-BS
4	10th Ave. North	Windmill Sub Division	M49	LS-CH
5	11 Ave	11 Ave. & Windmill Dr.	M04	LS-CJ
6	22 Ave. Heights	Causeyville Rd.	M21	LS-BY

Table 5.1 Summary of Pump Station Inventory Wastewater Collection System Rehabilitation Program City of Meridian, MS				
PS No.	PS Name	Location Description	City's File Ref	GIS Ref ID
7	27th Place	27th Street	M02	LS-BW
8	31 Ave. South	31 Ave. South	M19	LS-BZ
9	38th St.	38th St. & 24th Ave.	M48	LS-BJ
10	56th Court	56th Court and Dogwood Hills	M39	LS-BV
11	61st Court	61 Court	M37	LS-BU
12	65th Ave.	65th Ave.	M43	LS-AT
13	70th Place	Old 8th St.Rd.	M44	LS-AH
14	A Ave.	2213 A Ave.	M27	LS-BX
15	Air Port Lift Station	Highway 11 South	M12	LS-AA
16	Chandler Rd. #1	Chandler Rd. & Bounds Rd.	M11	LS-AR
17	Chandler Road #2	North End of Chandler Rd		LS-AS
18	Cotton Gin Rd.	Cotton Gin Rd. & Red Baron Rd. (flows to East WWTP)	M47	n/a
19	Days Inn	Highway 80 East	M24	LS-AQ
20	Dogwood Dr.	Dogwood Dr.	M33	LS-BR
21	Highway 39 #1	Highway 39 North		LS-BP
22	Highway 39 #2	Highway 39 North	M35	LS-BO
23	Hwy 19 S #1	890 Hwy 19 S, (near Mitchum Rd. & Hwy 19 S)		LS-AO
24	Hwy 19 S #2	992 Hwy 19 S, (near Bonita Dr & Hwy 19 S)		LS-BH
25	Hwy 493	6210 Hwy 493, near a new Church, 0.6miles north of 56th Ct & Hwy 493		LS-BI
26	James River	Virginia Dr.	M31	LS-BM
27	Knight Parker Rd.	Knight parker rd & Old US HWYS 11 & 80	M54	LS-CB
28	La La	900 Frontage Rd.	M18	LS-BL
29	Lindley Rd.	Lindley Rd.	M08	LS-BK
30	Lockhart Trailer Park Rd.	Lockhart Trailer Park Rd. (Flows to Cottin Gin Rd LS)	E9	n/a

**Table 5.1 Summary of Pump Station Inventory  
Wastewater Collection System Rehabilitation Program  
City of Meridian, MS**

PS No.	PS Name	Location Description	City's File Ref	GIS Ref ID
31	Lovers Ln.	Old 80th St. Rd. & Lovers Ln.	M52	LS-AG
32	Lower Bounds Rd.	Chandler Rd.	M42	LS-AL
33	MCC	1435 College Drive	M01	LS-AK
34	N.A.S. Air Station	N.A.S. GATES (flows to Lockhart Trailer Park Rd. LS)	E8	n/a
35	Newell Rd. #1	Newell Rd.	M40	LS-BG
36	Newell Rd. #2	Newell Rd.	M06	LS-AI
37	Newell Rd. #3	Newell Rd.	M05	LS-BF
38	North East Softball	Newell Rd.	M07	LS-CE
39	North Hills St.	6520 North Hills St.	M34	LS-AE
40	North West School	35 Street	M03	LS-BE
40	North Wood Common	North Wood Common Cir.	M10	LS-BD
42	North Wood East	10 Ave.	M09	LS-BC
43	North Wood East Apt.	Highway 39 North	M38	LS-BB
44	Old 80 #1 Station	6900 Old 80 West	M17	LS-AF
45	Old 80 #2 Station	West of town near Railroad Tracks, near I-20 and Old US Hwy 80	n/a	LS-AW
46	Old 80 #3 Station	West of town by Prison Gates, near I-20 and Old US Hwy 80	n/a	LS-AV
47	Old 80 East Industrial Park	On US Hwys 11 & 80 between Us Hwy 45 and W Malone Ranch Rd, Inside Industrial Park	n/a	LS-CC
48	Pancake Field	19th St.	M20	LS-BA
49	Pippins Rd.	Bonita Dr.& Pippin Rd	E7	LS-CD
50	Red Lobster	Bonita Dr., South Frontage Road	M22	LS-AN
51	River Birch LS	Highway 19 North & 67 Ave. Loop (behind Colonial Storage on River Birch Drive)	M53	LS-CM
52	South Industrial Park	Highway 11 South	M46	LS-AP

Table 5.1 Summary of Pump Station Inventory Wastewater Collection System Rehabilitation Program City of Meridian, MS				
PS No.	PS Name	Location Description	City's File Ref	GIS Ref ID
53	Sowashee Creek	on Old US Hwy 11 & 80 near WMOX radio Station	M56	LS-CA
54	St. John	at the end of 27th Ave., between St John St. and Sowashee Creek?	n/a	LS-AZ
55	Sweet Gum Bottom Rd.	n/a	n/a	LS-CN
56	The Commons	North of Windmill Dr. at Old Poplar Springs Dr and 69th CT.	M55	LS-CI
57	Tom Bailey Dr.	Highway 11 & 80	M26	LS-AB
58	Tom Regan Rd.	65th Ave.	M45	LS-AD
59	Tommy Webb Dr.	Tommy Webb Dr.	M13	LS-CK
60	Village Fair Mall	North Frontage Rd.	M28	LS-CL
61	Windmill Dr.	Windmill Dr.	M16	LS-CF

## 5.2 GIS DATABASE OF PUMP STATION AND FORCE MAIN LOCATIONS

Each pump station location was entered into the City's GIS database except for the three pump stations serving the Naval Air Station. Several force mains were also added to the GIS database and some sewer mains re-routed according to City staff interviews. The location of each pump station is shown in Figure 5.1.

Pump station service area polygons were added to the City's GIS database. The pump station service area polygons were used to estimate Inflow and Infiltration (I/I) rates to each pump station and calculate the linear footage of sewer mains located in each basin. Details of the I/I estimation are covered in Section 5.4. Each of the pump station service areas are shown in Figure 5.2.

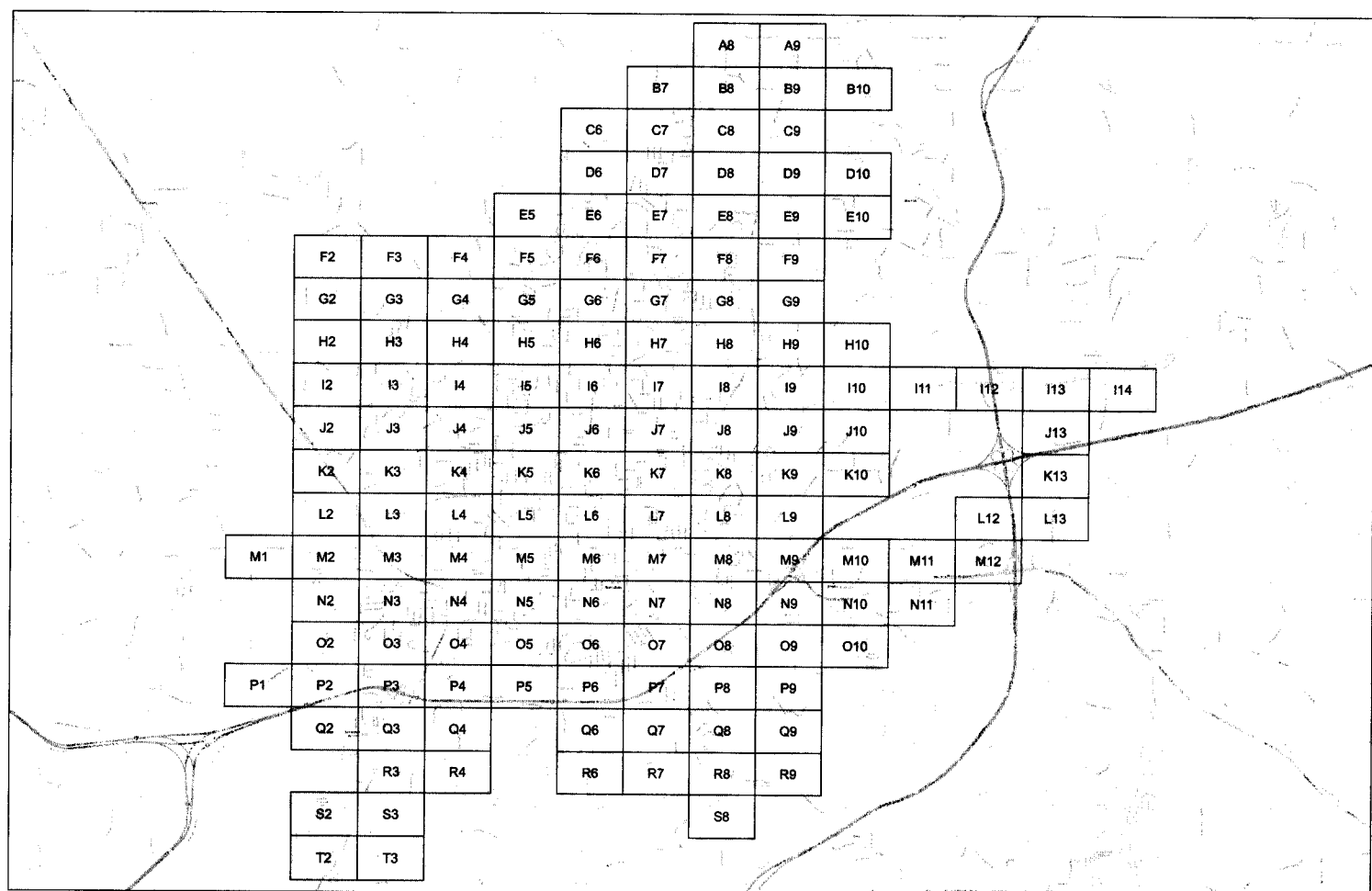
## 5.3 PUMP STATION FLOW DEPENDENCY

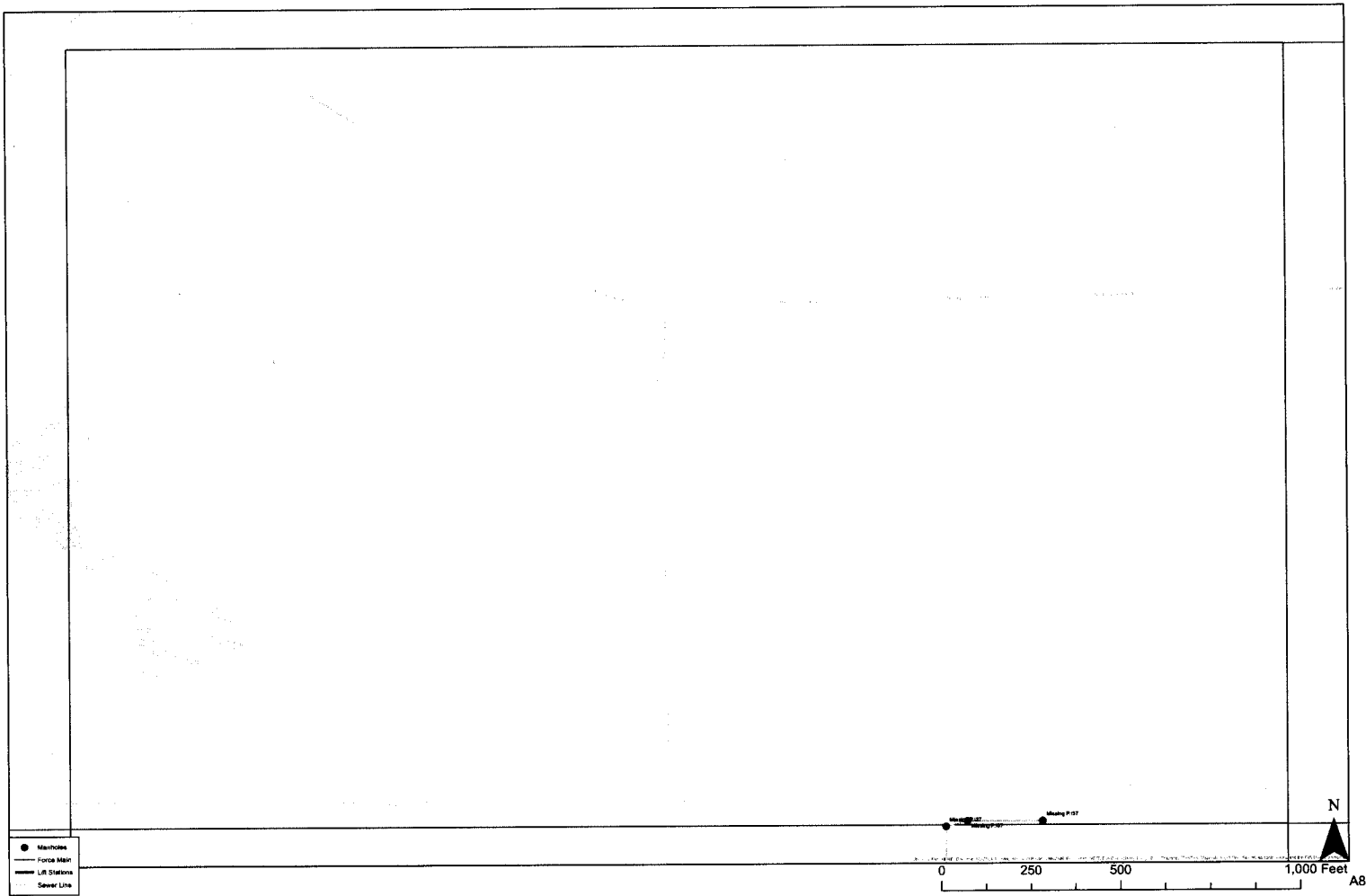
Since some pump stations are in series with other pump stations, the dependencies of upstream pump stations were examined for operational issues based on combined pumping flow rates. This required knowledge of the location of each force main. Many force main locations were already known, but City staff testimony provided the location of the remaining force mains. These additional force mains were added to the City's GIS. This allowed the pump station dependencies to be established. The pump stations that have two or more upstream pump stations in series are shown in Figure 5.3 along with their respective rated pumping capacity.

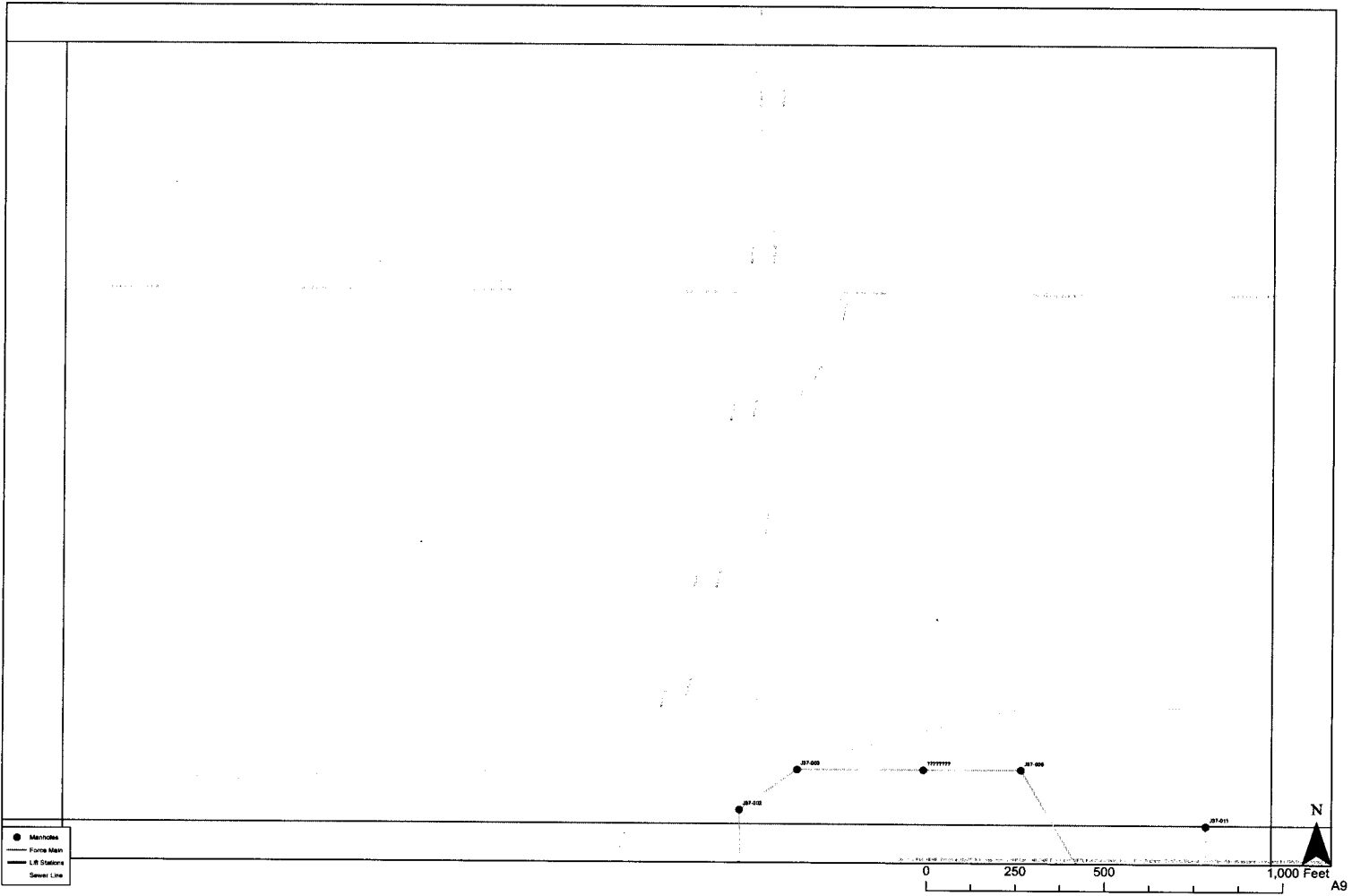
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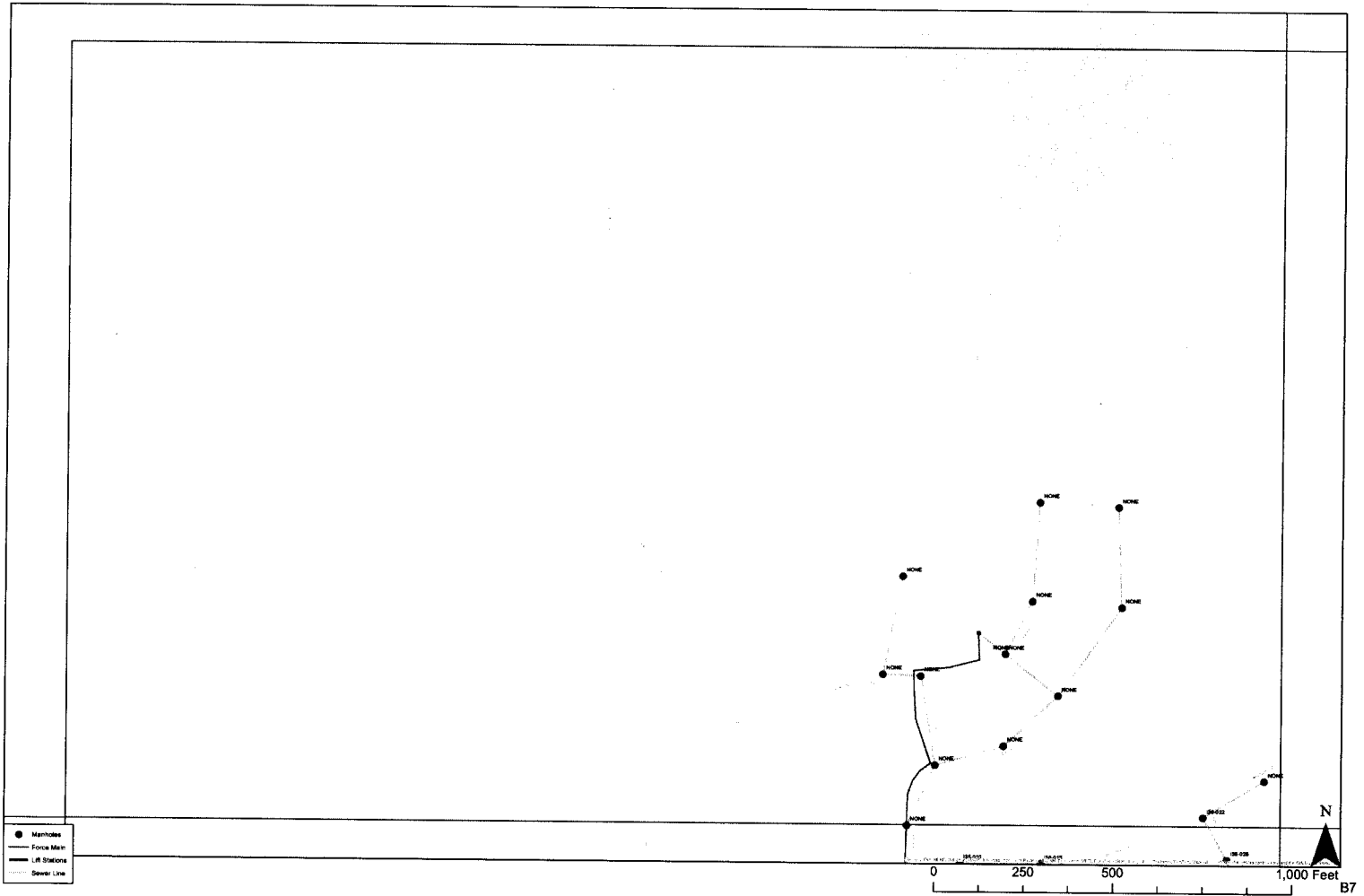
**April 3, 2015 City of Meridian Response to Request for Information**  
**Attachment C: Electronic Copy of Wastewater Collection System Maps**  
**Based on Currently Available GIS Data**

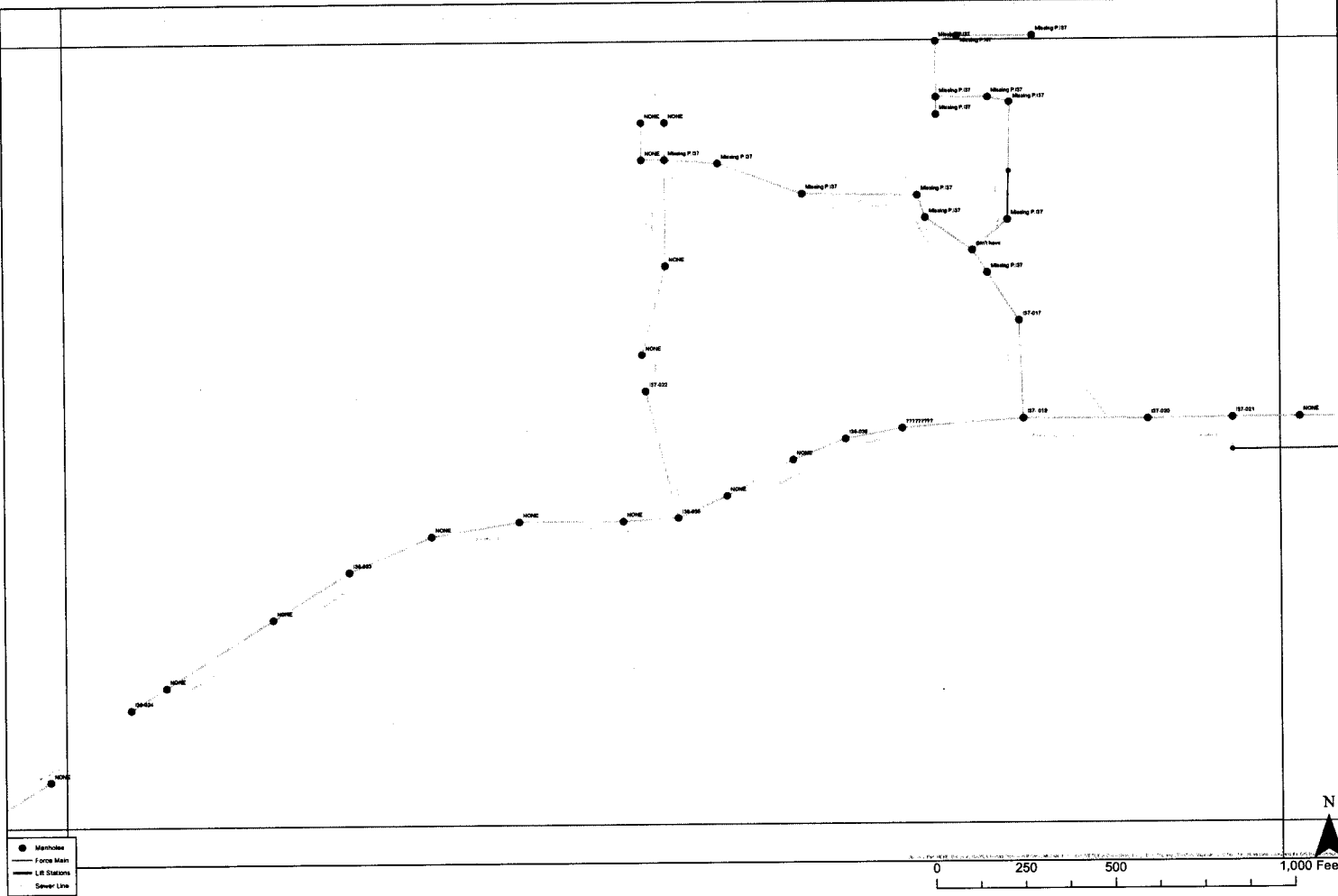
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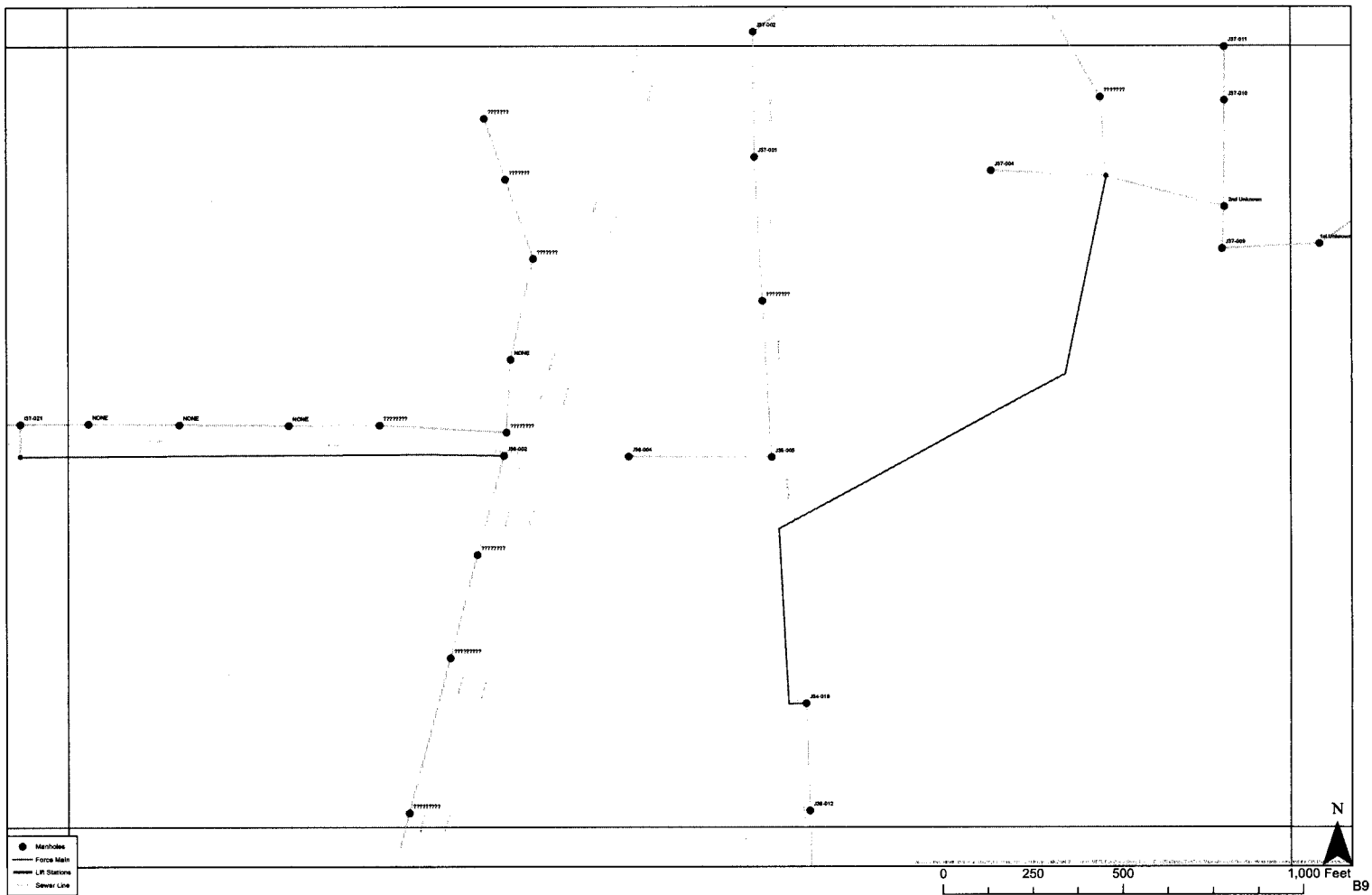


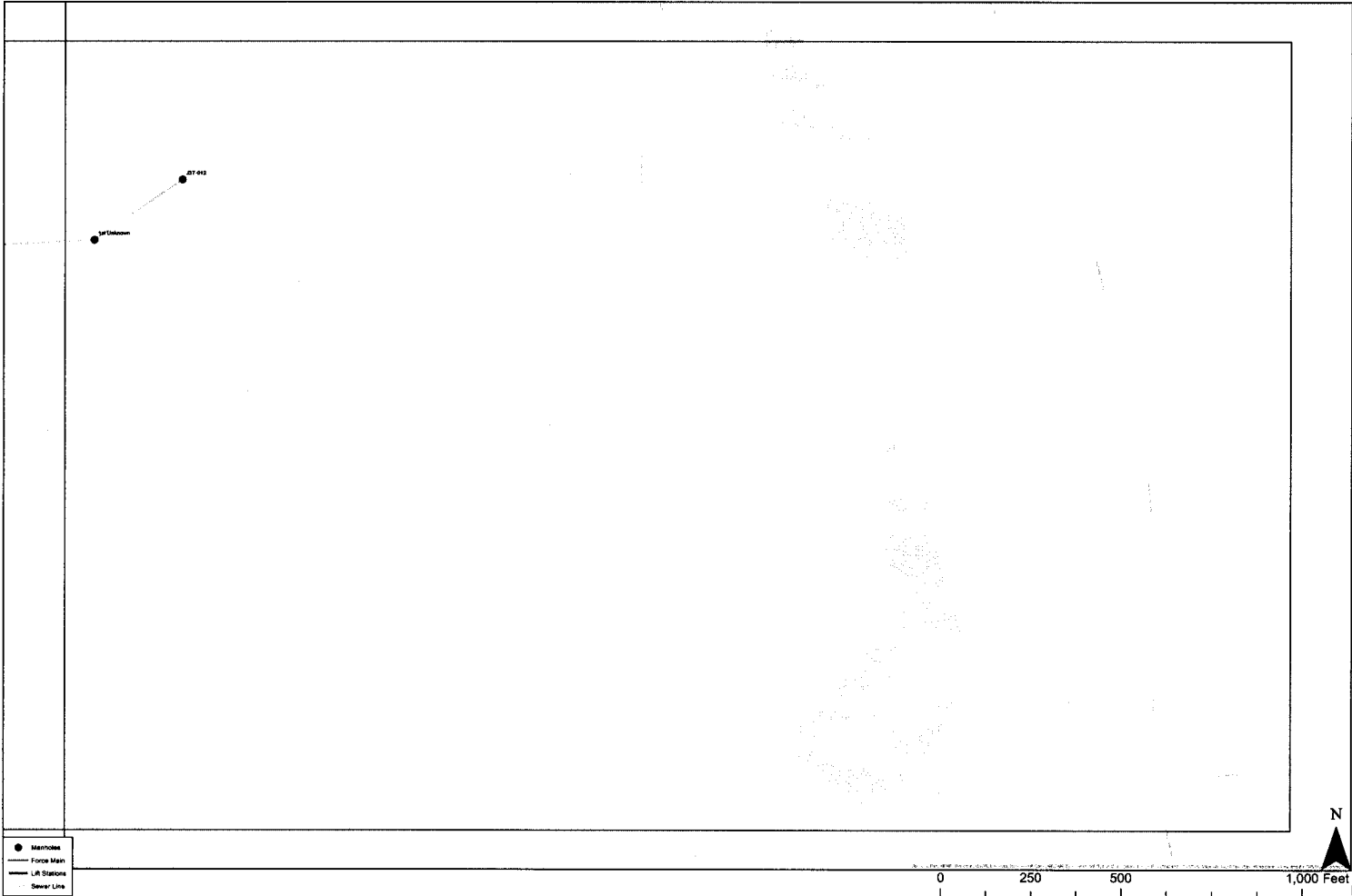


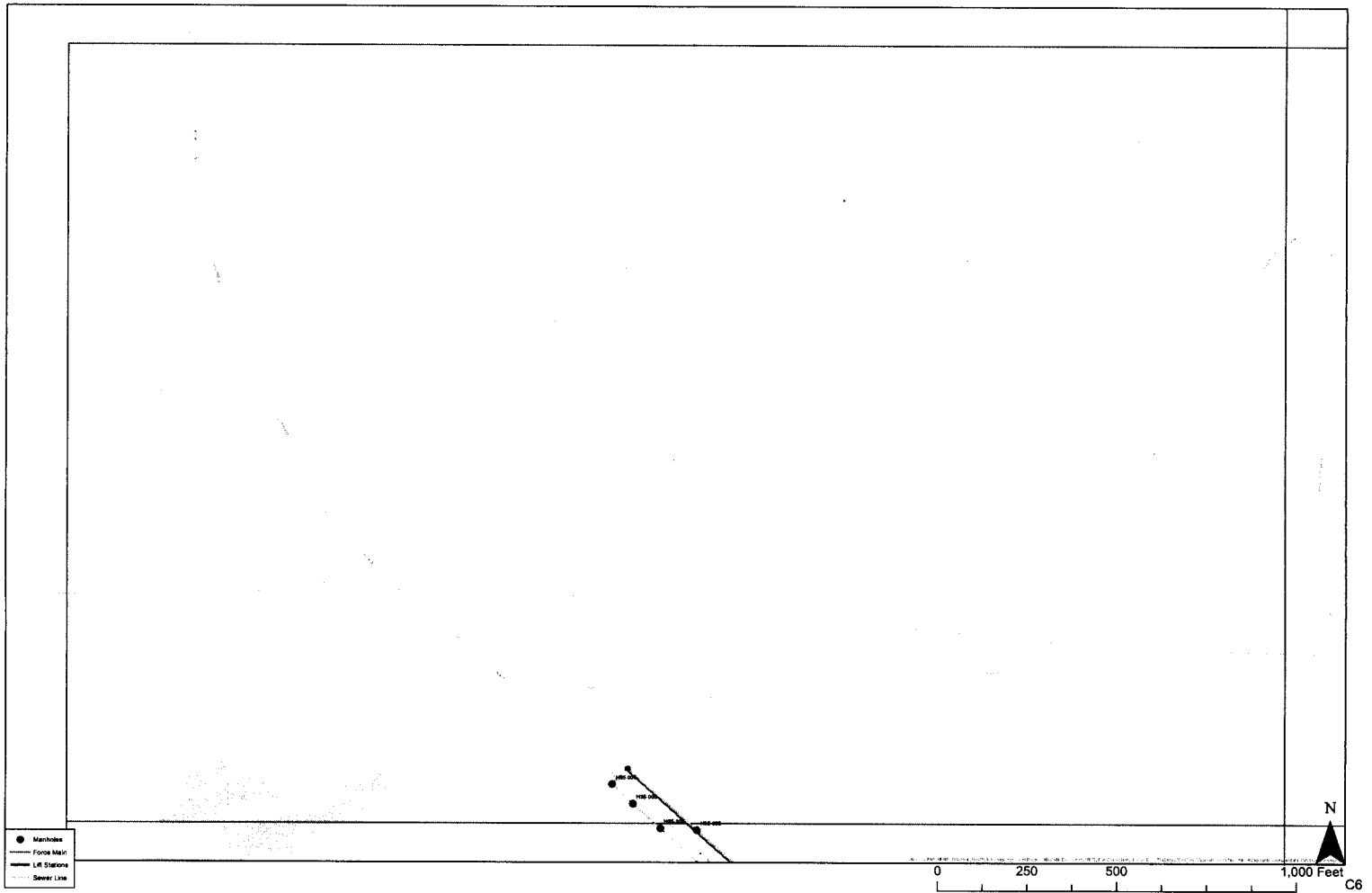


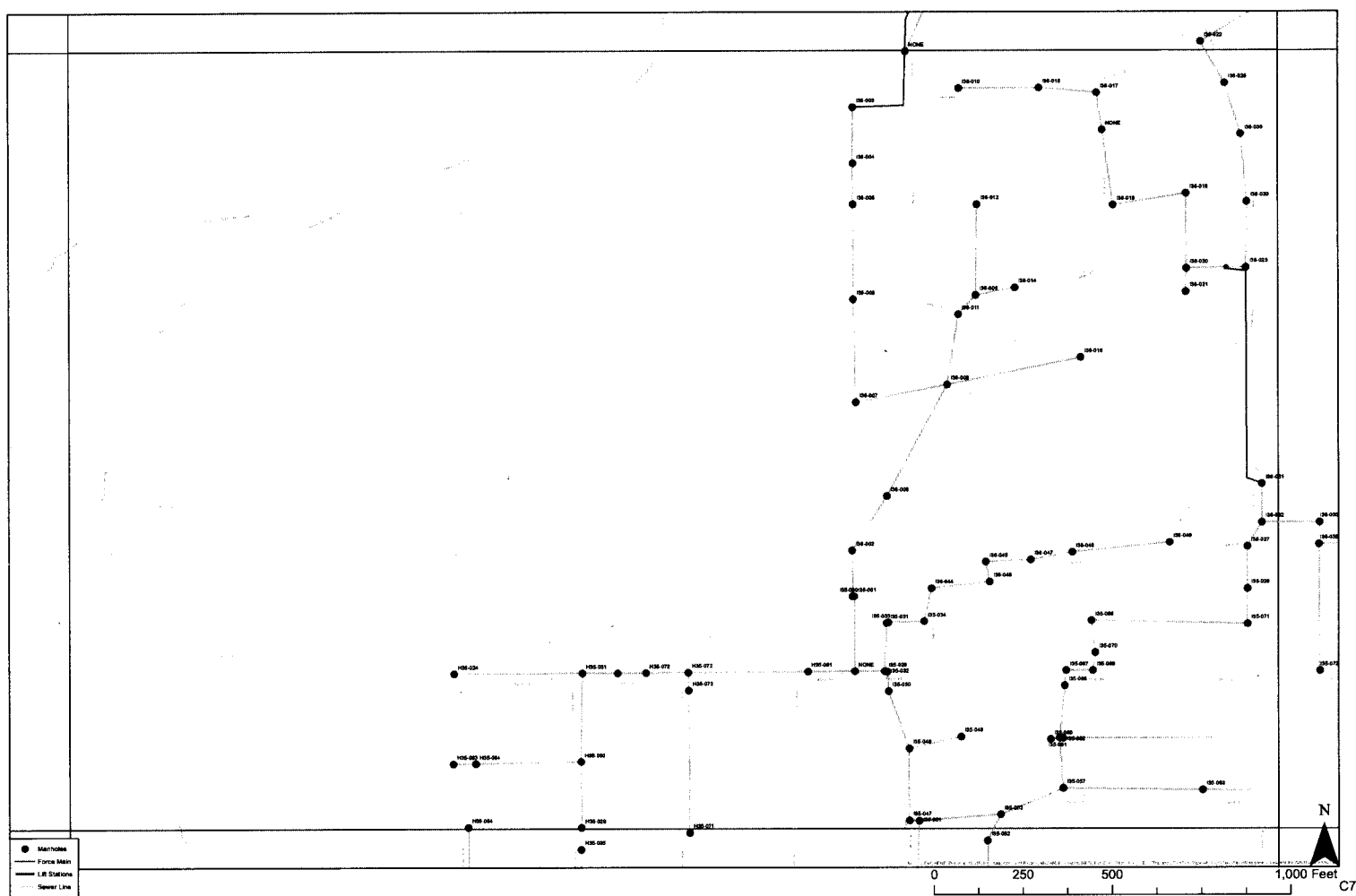


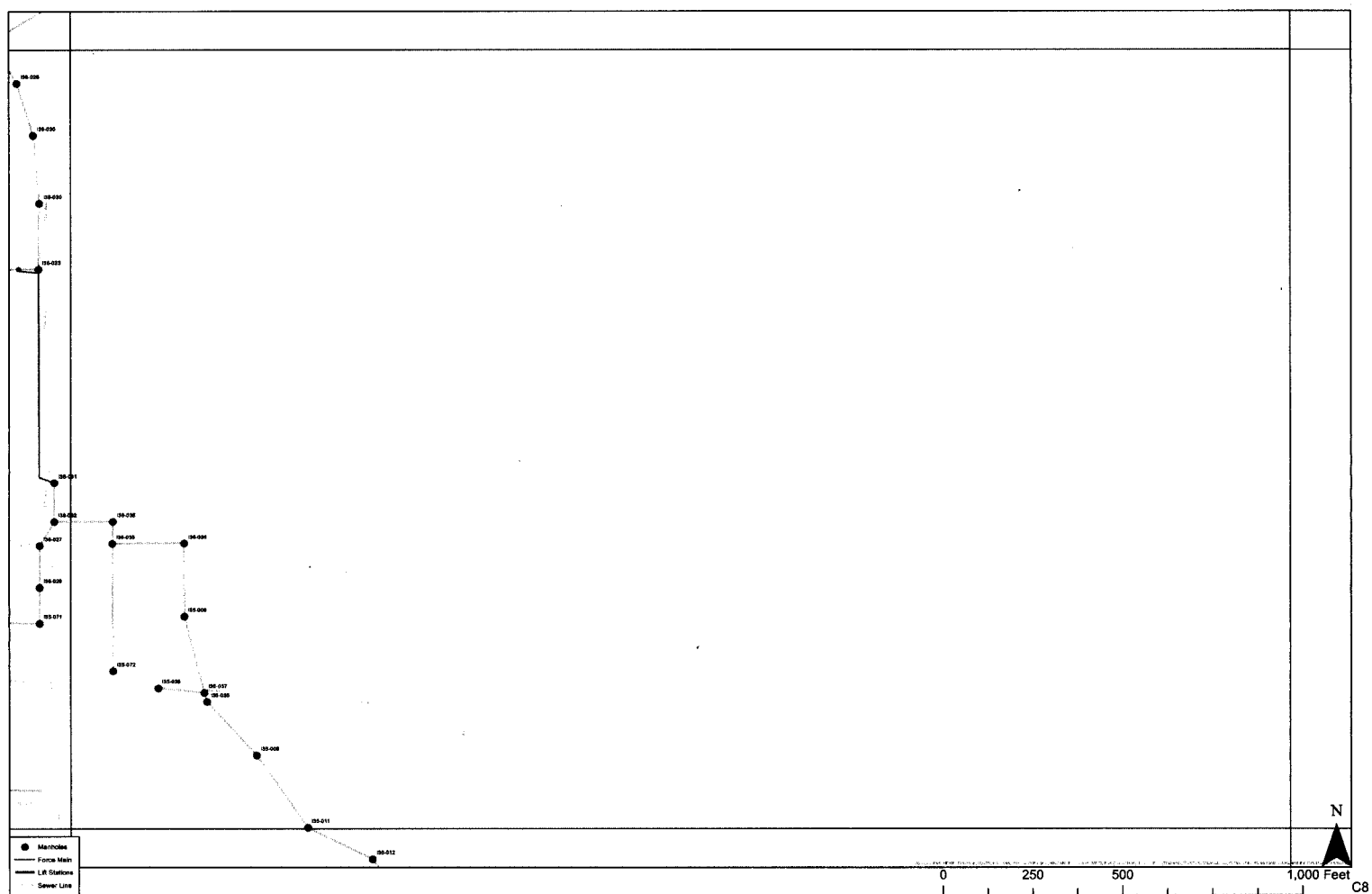


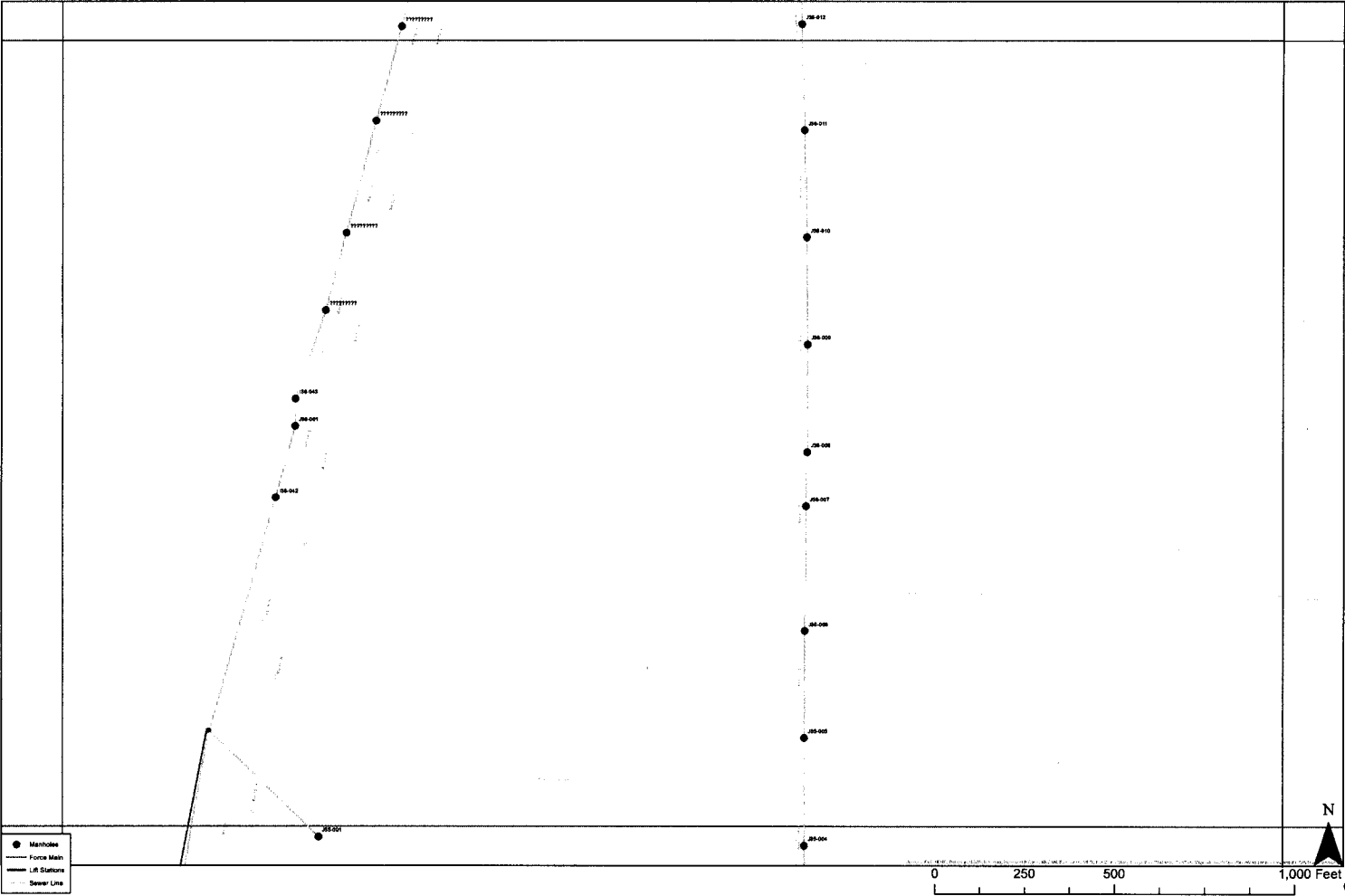


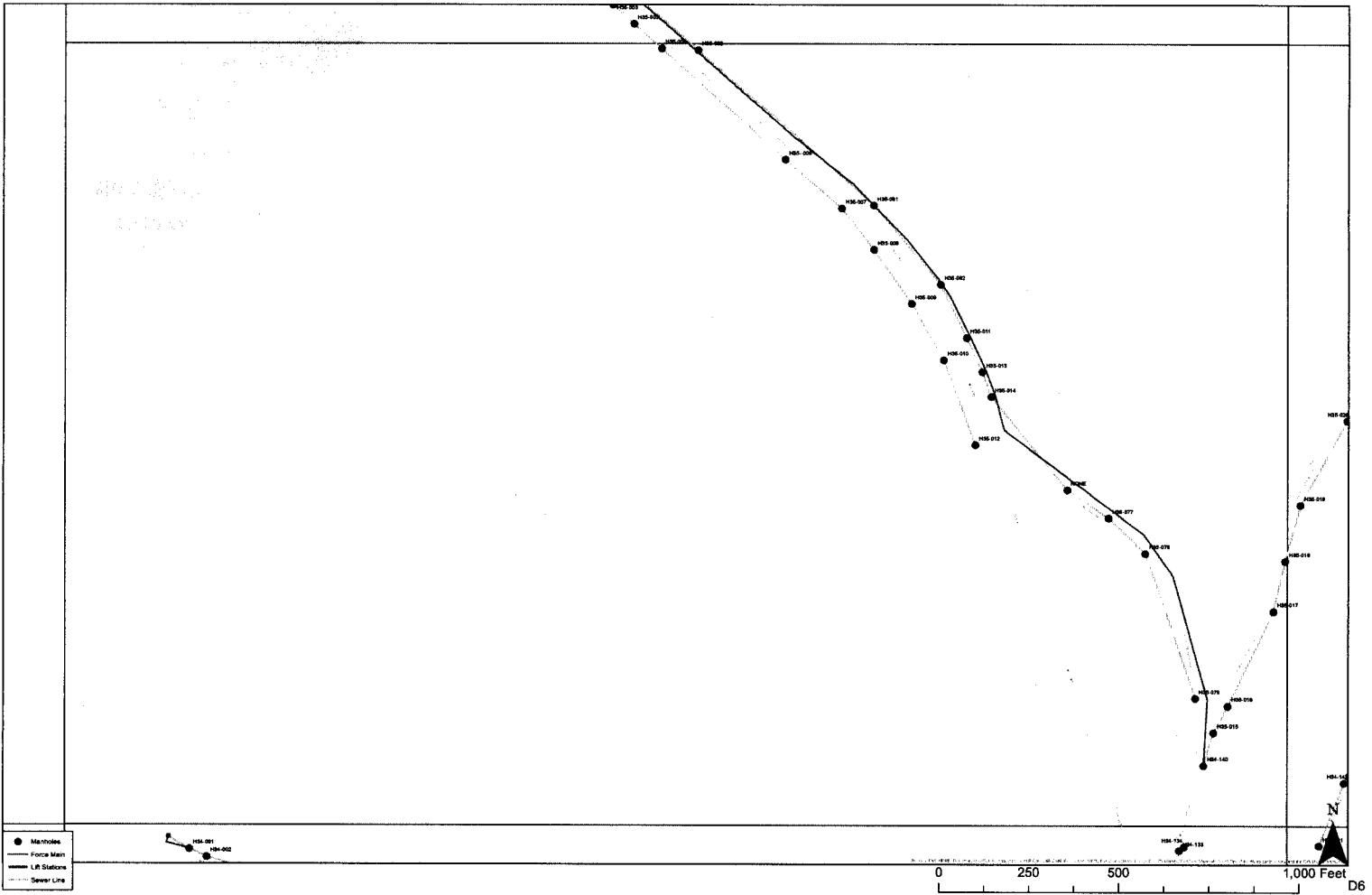


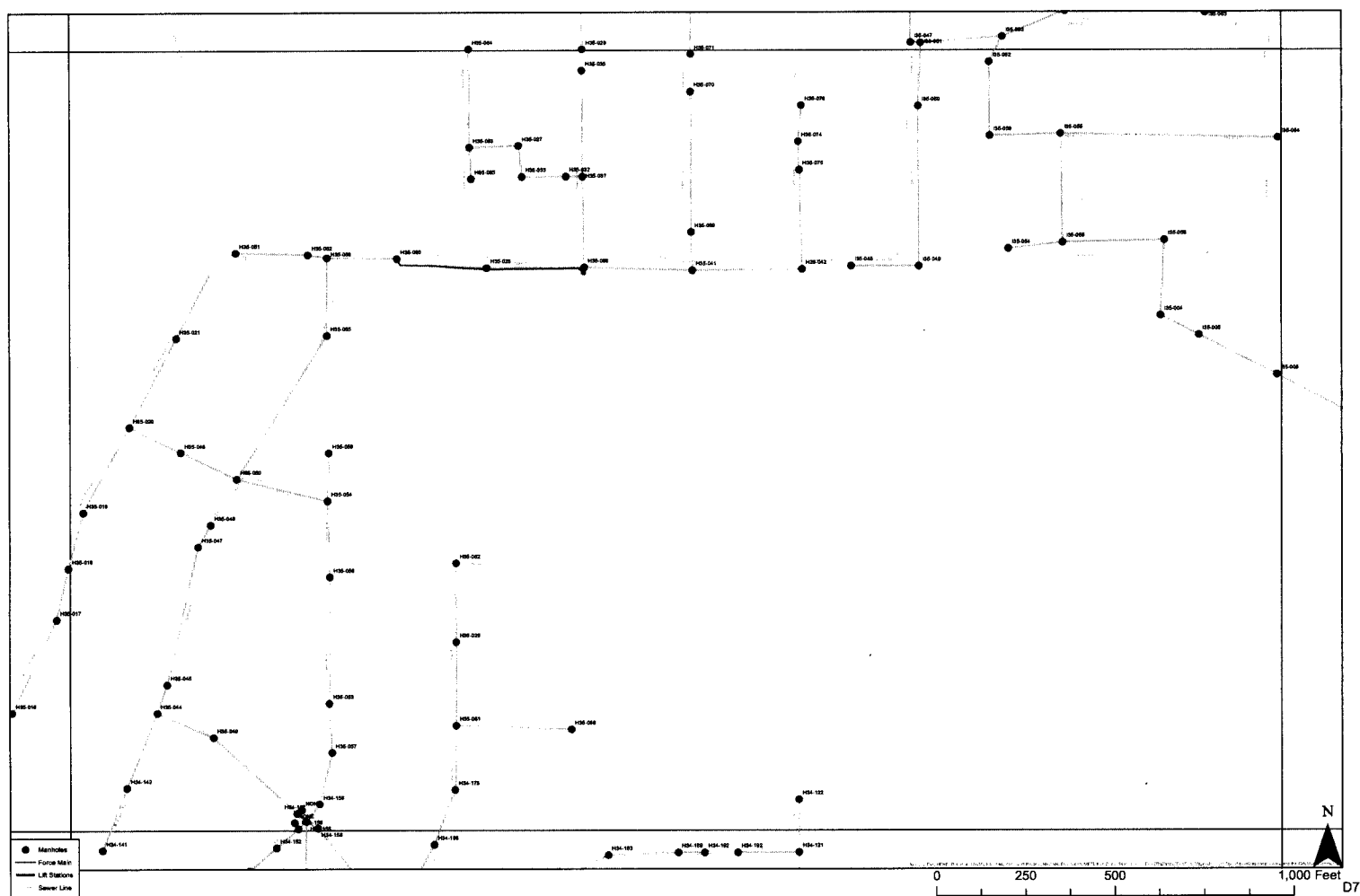


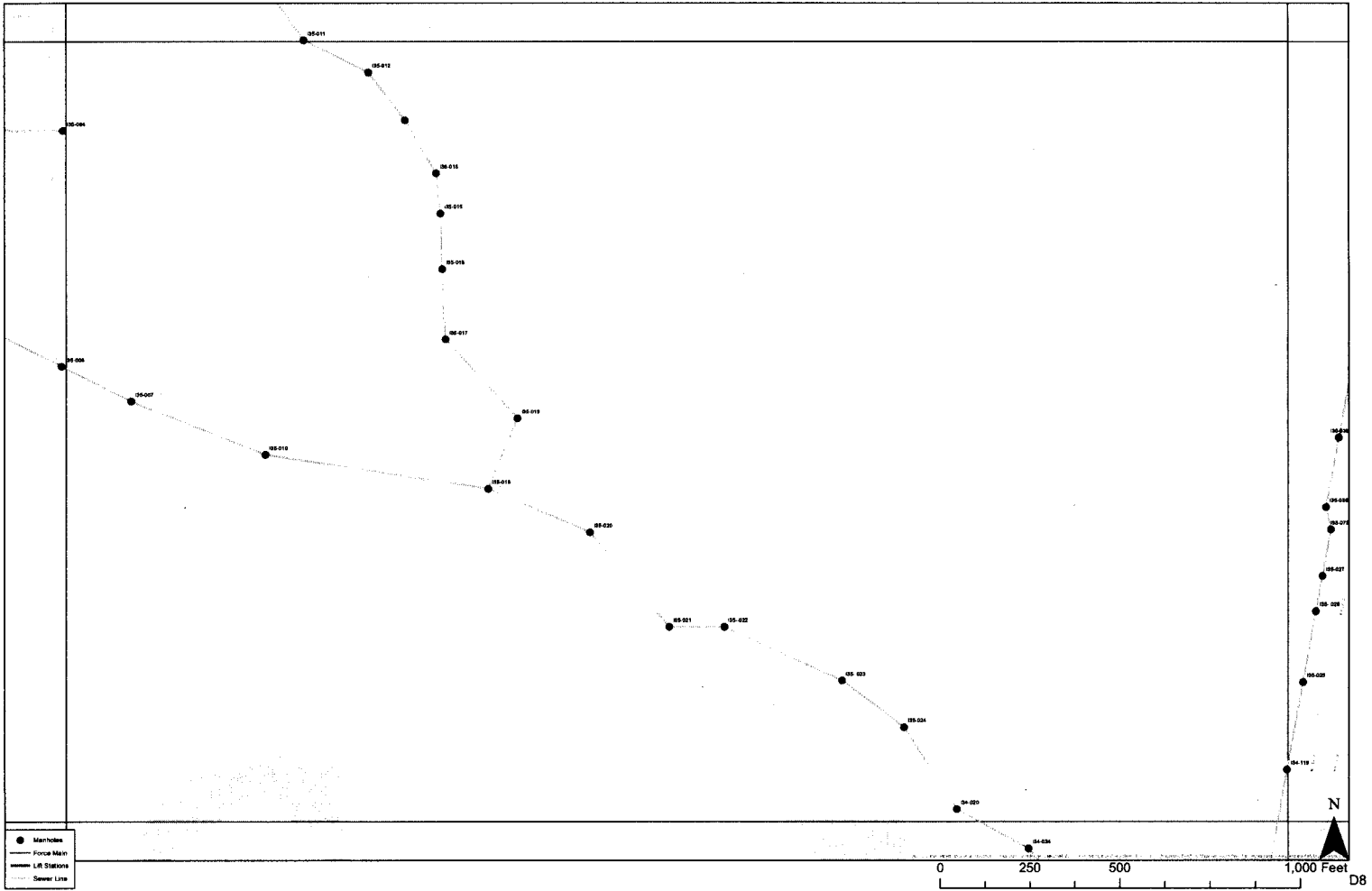


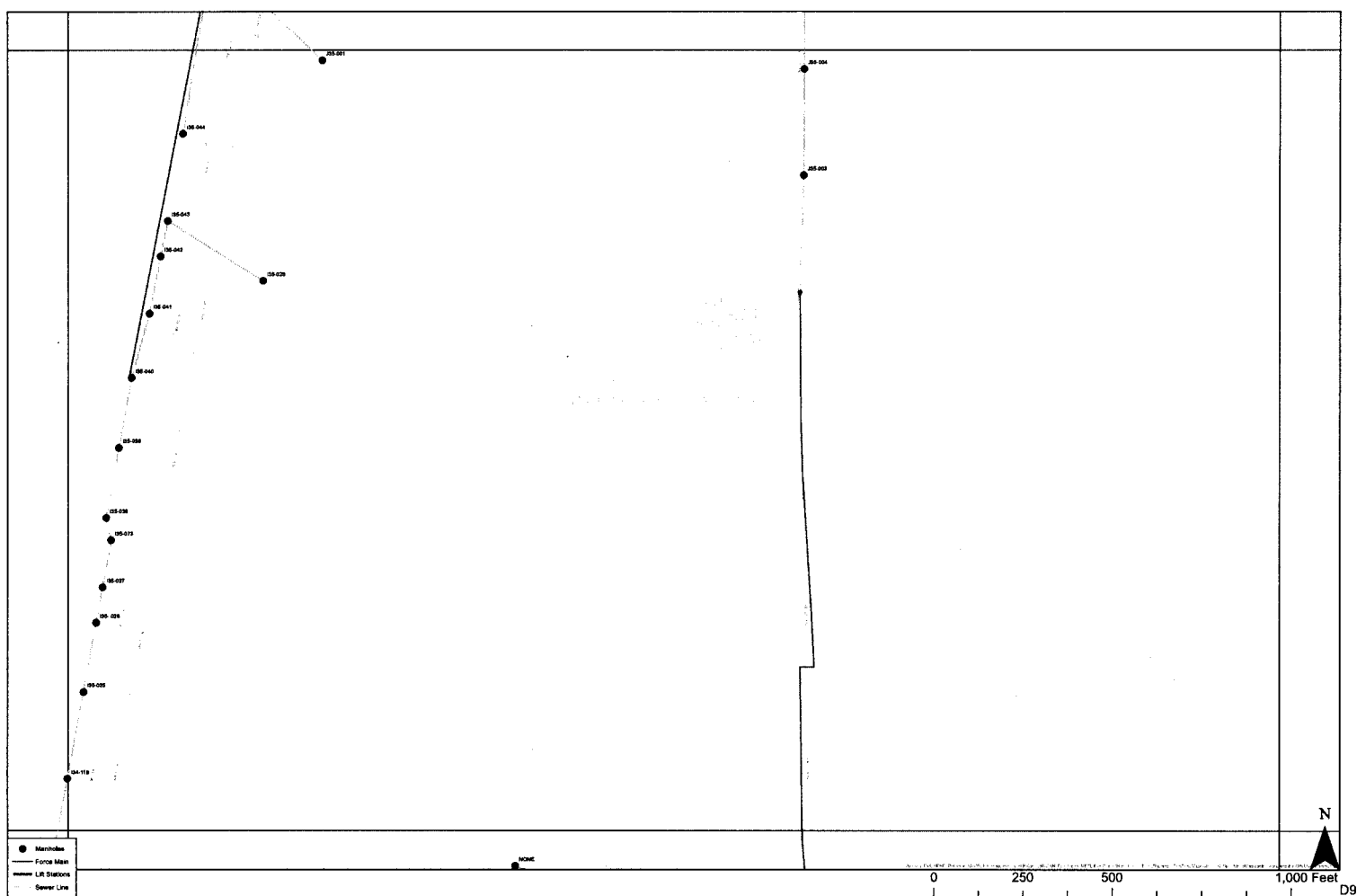


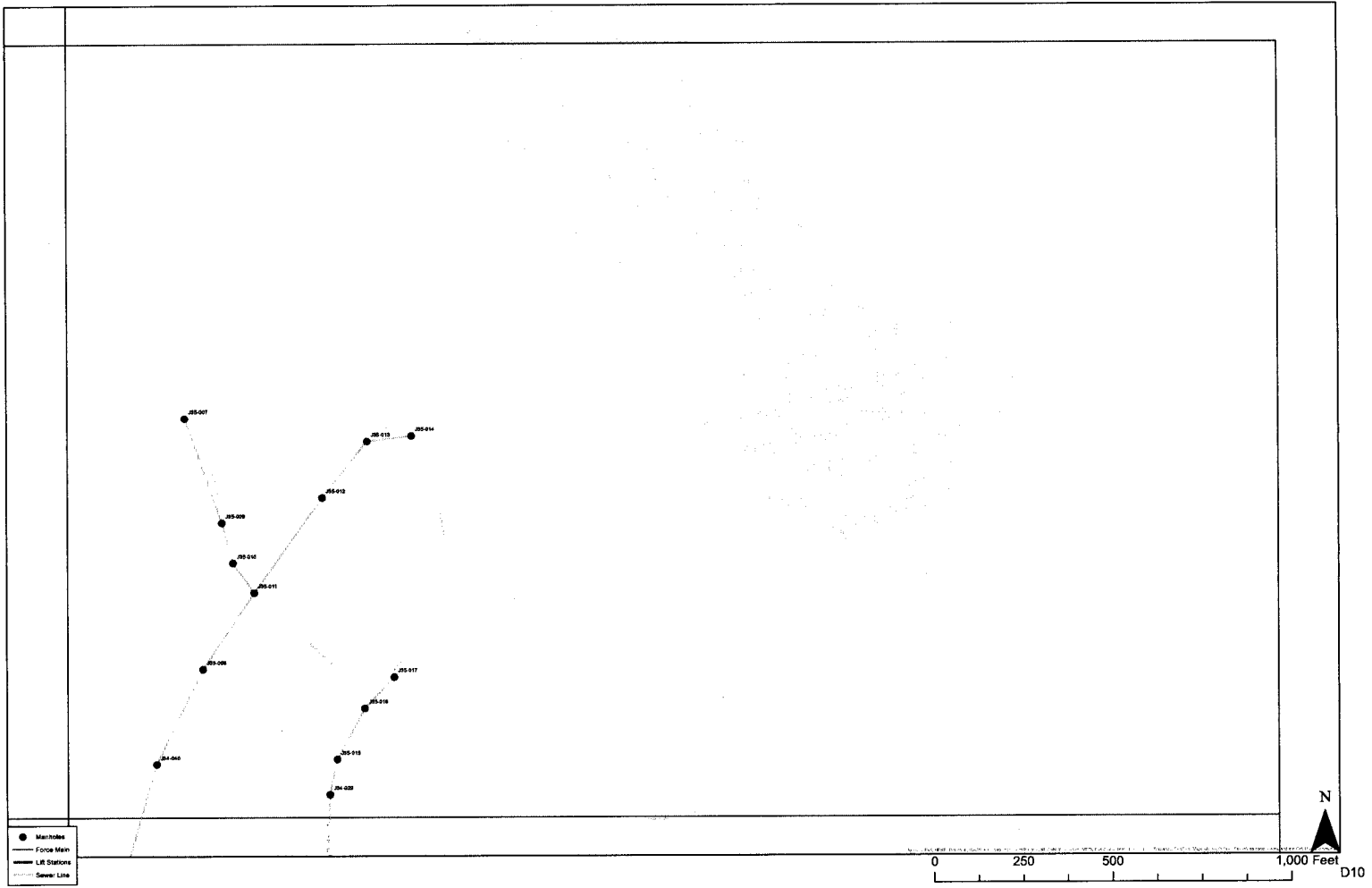


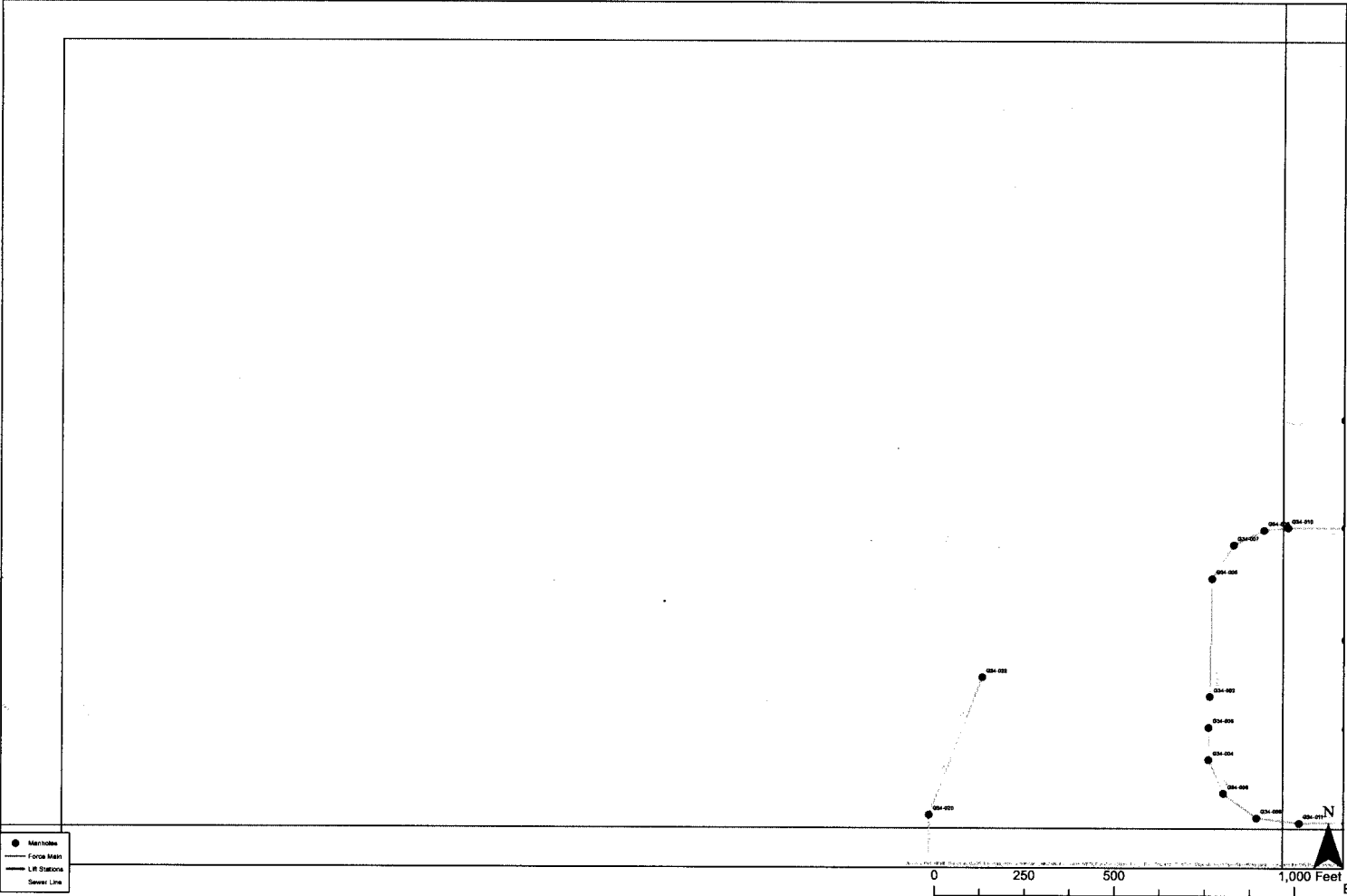




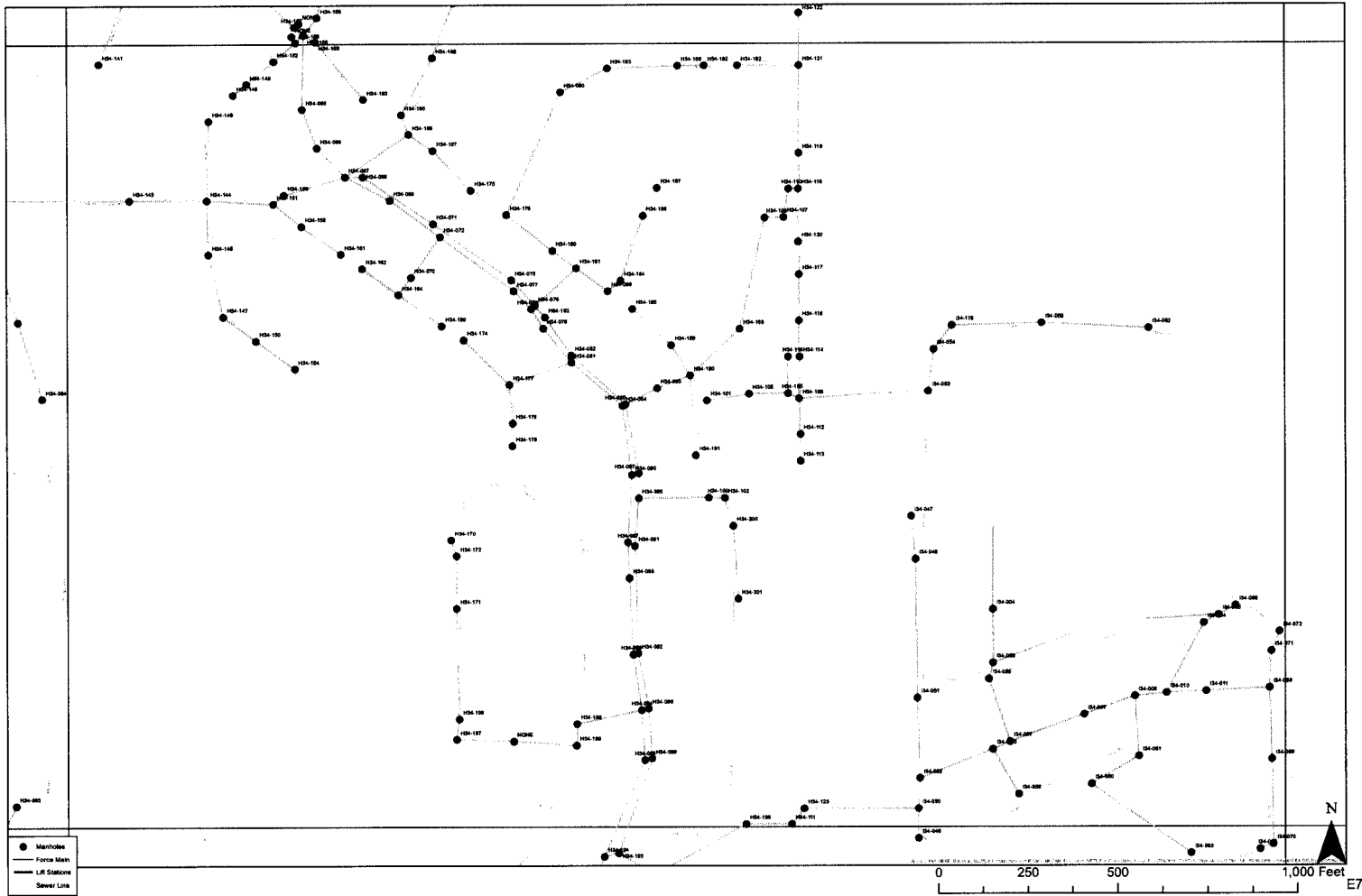


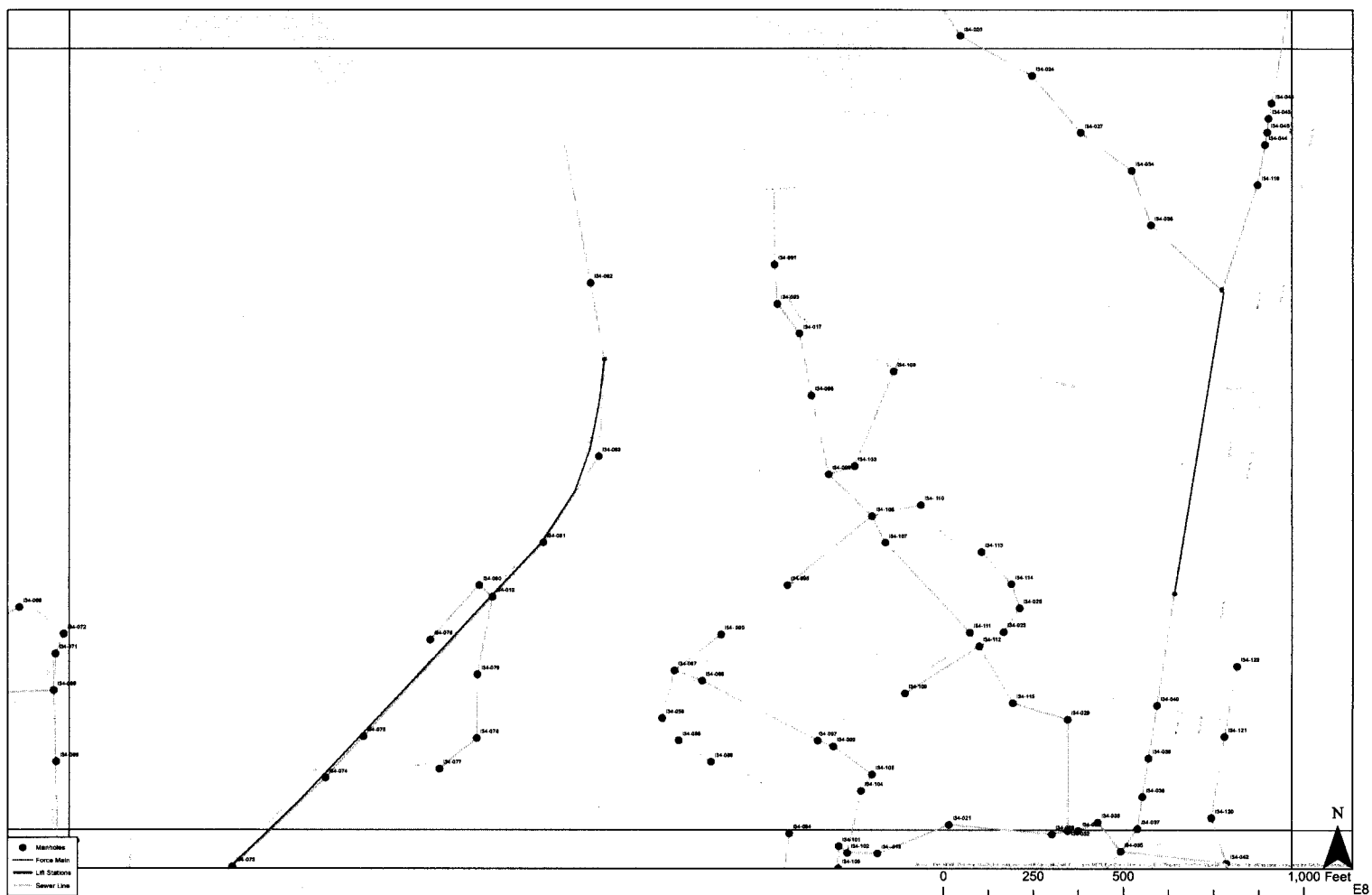


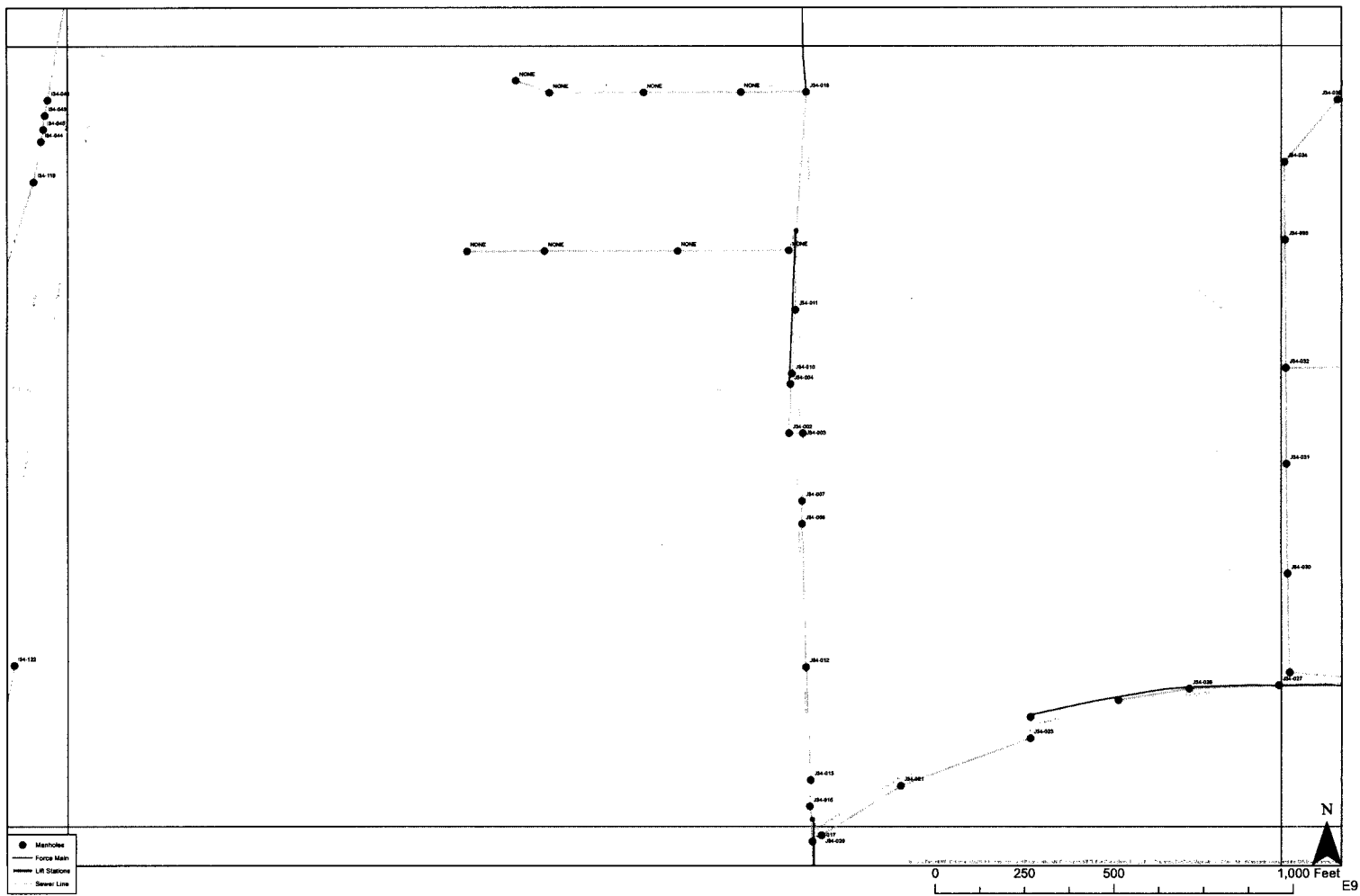


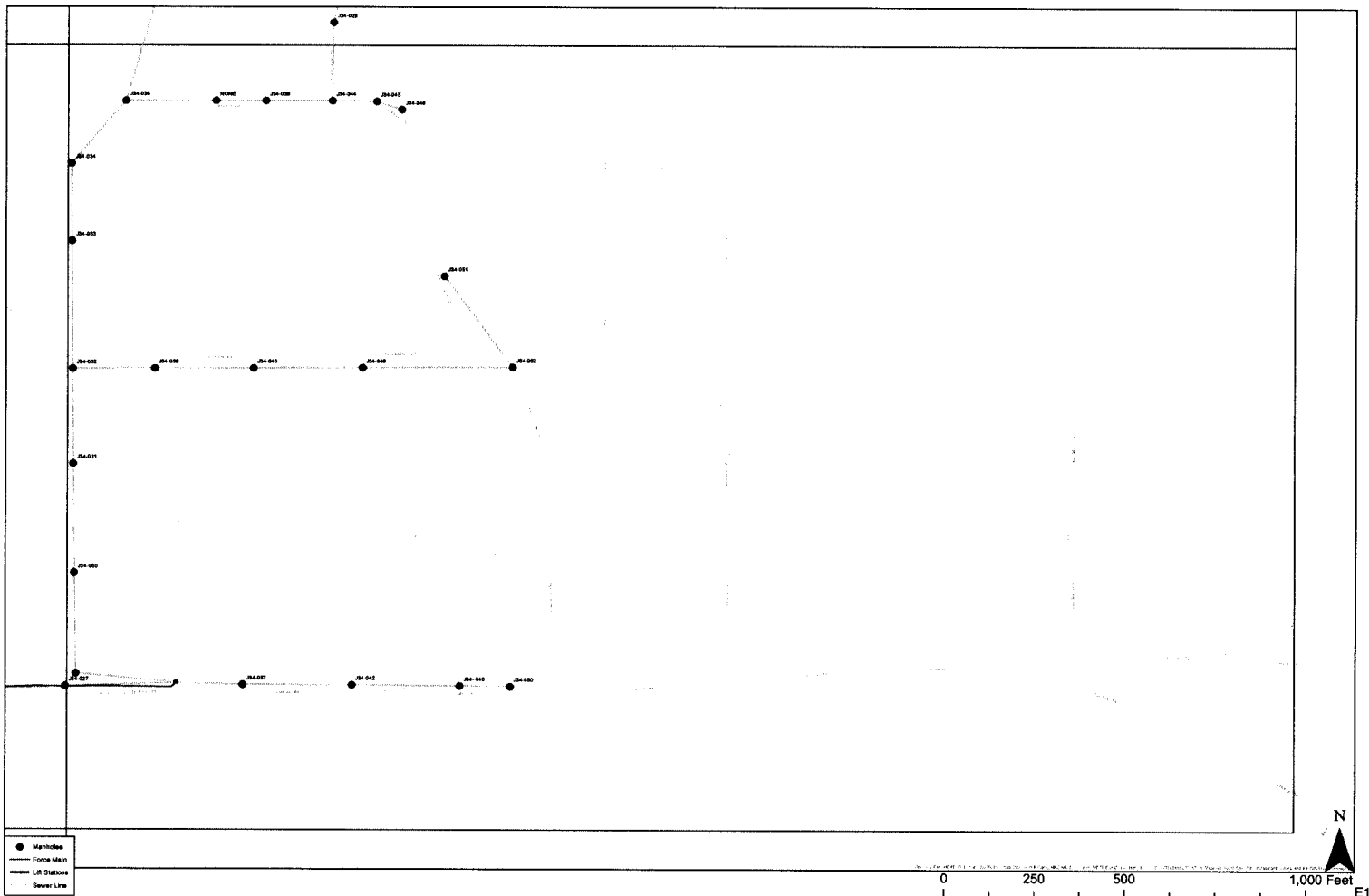


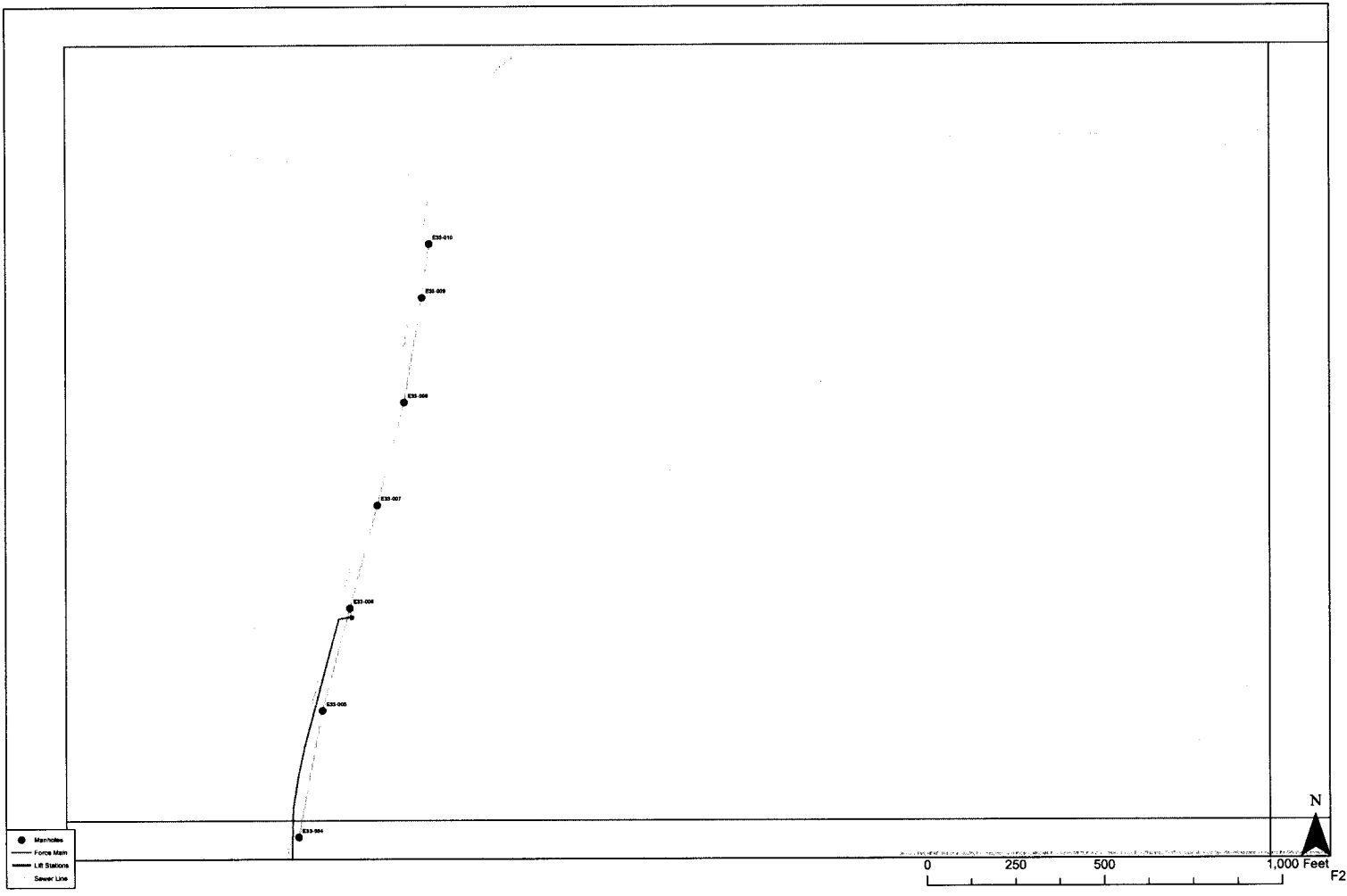


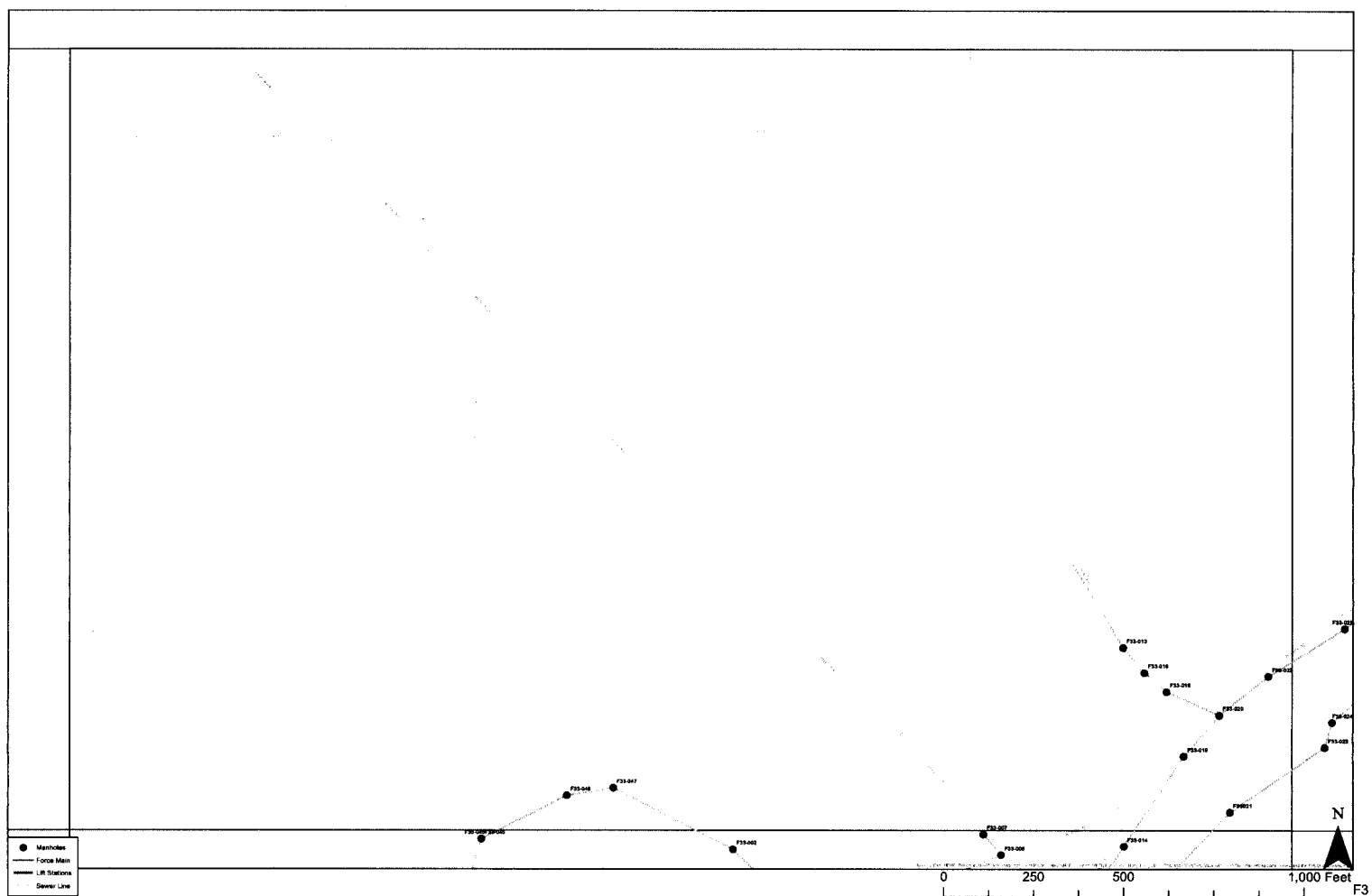


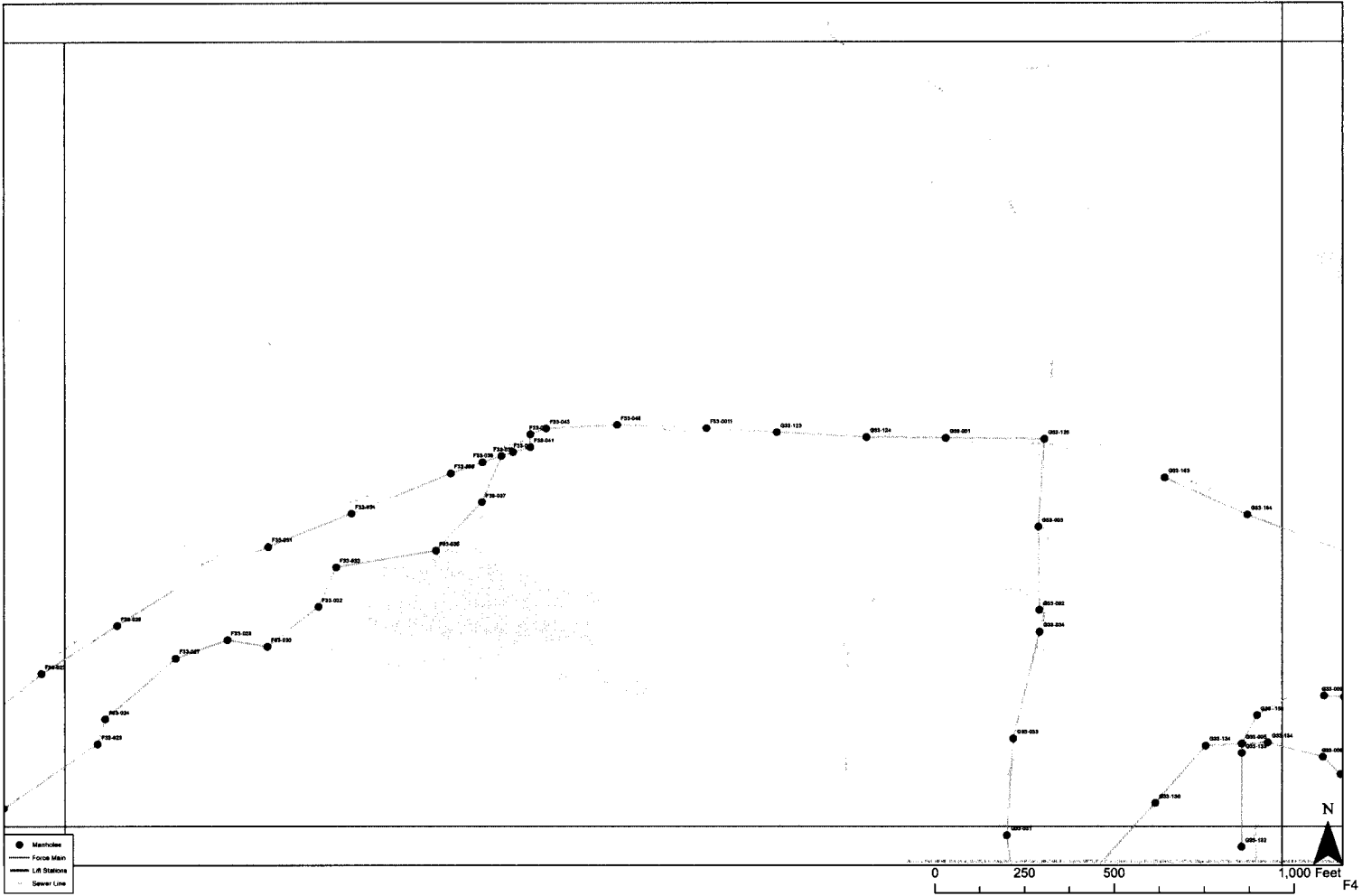


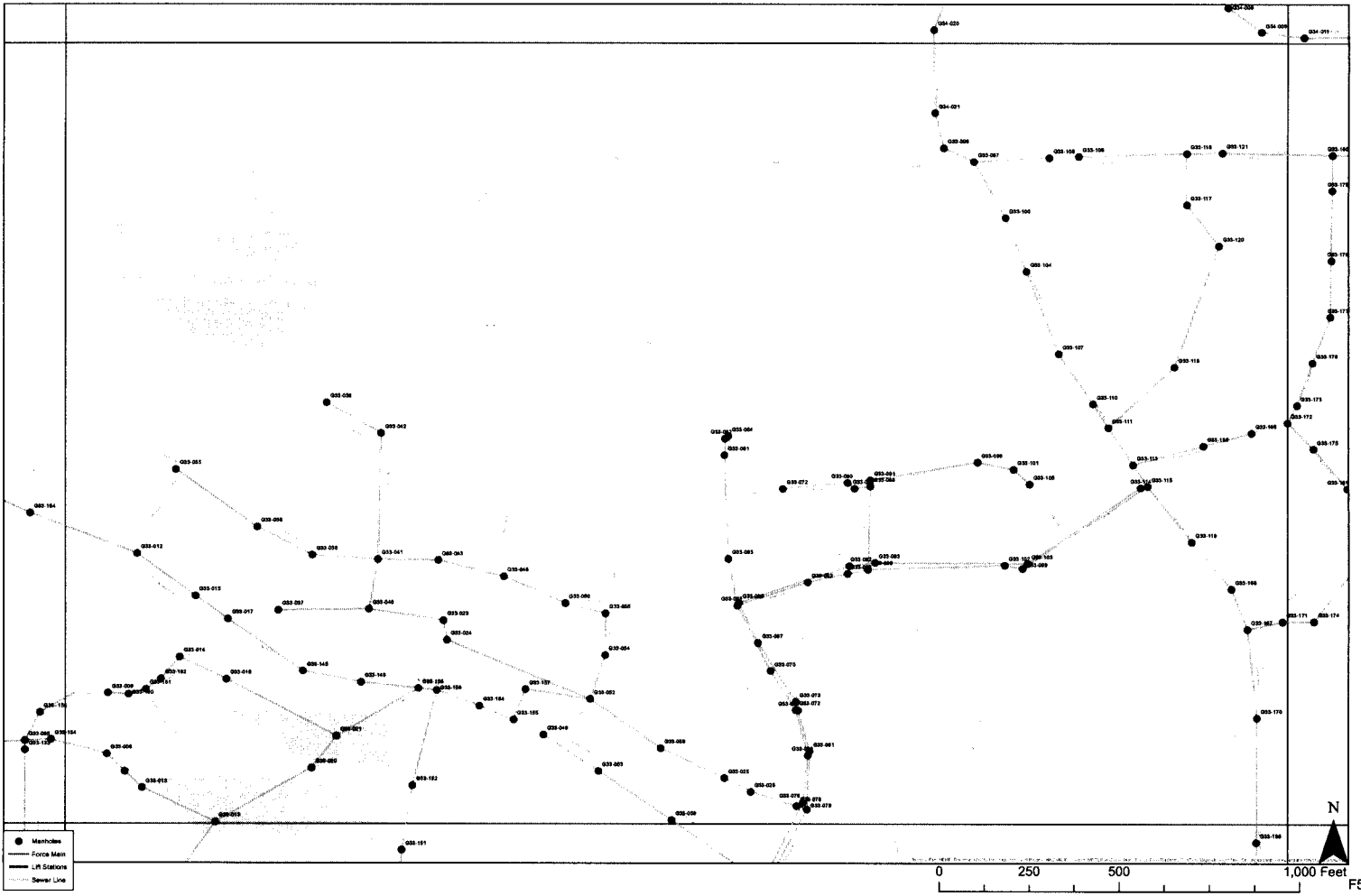


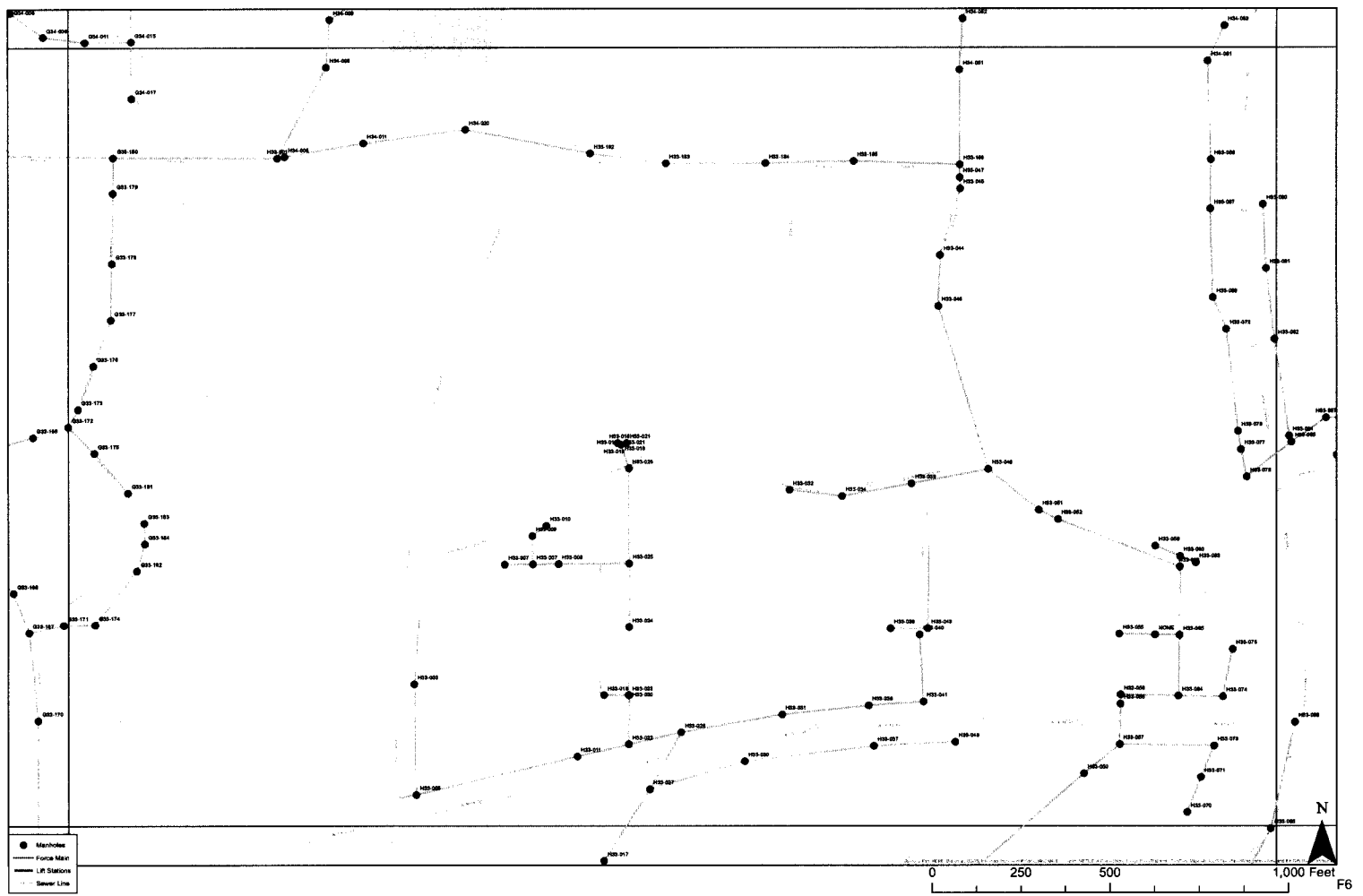




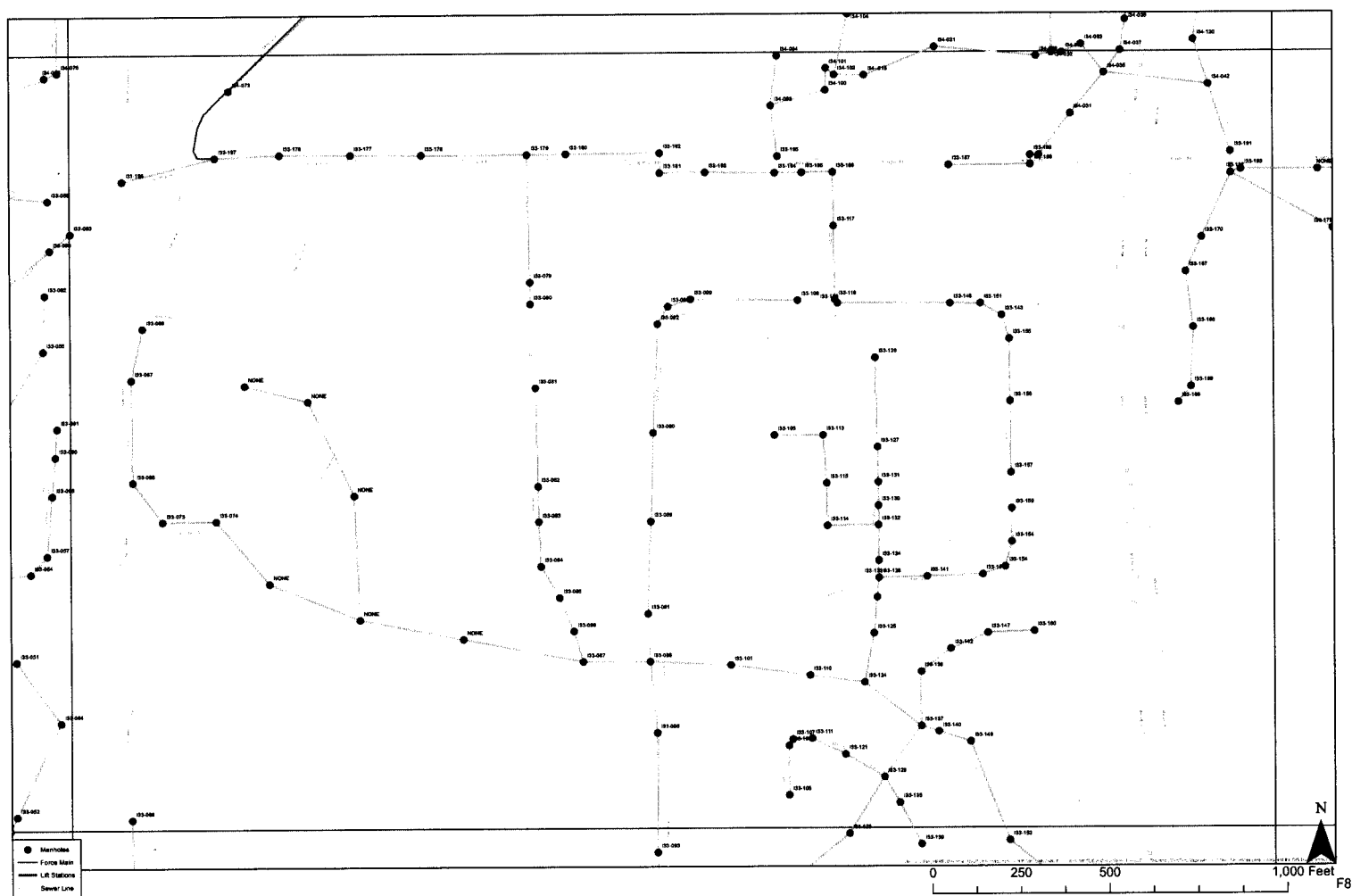


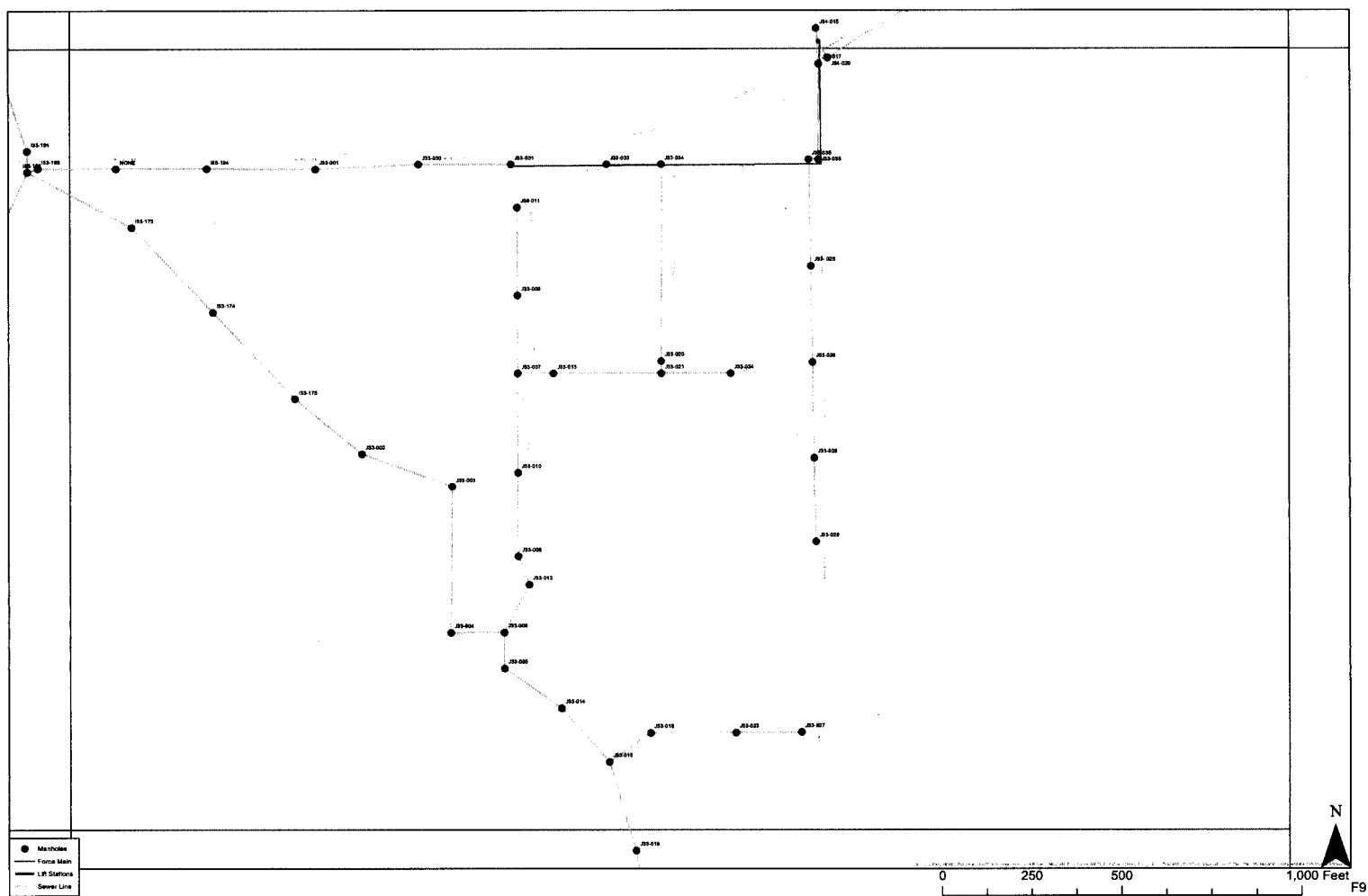


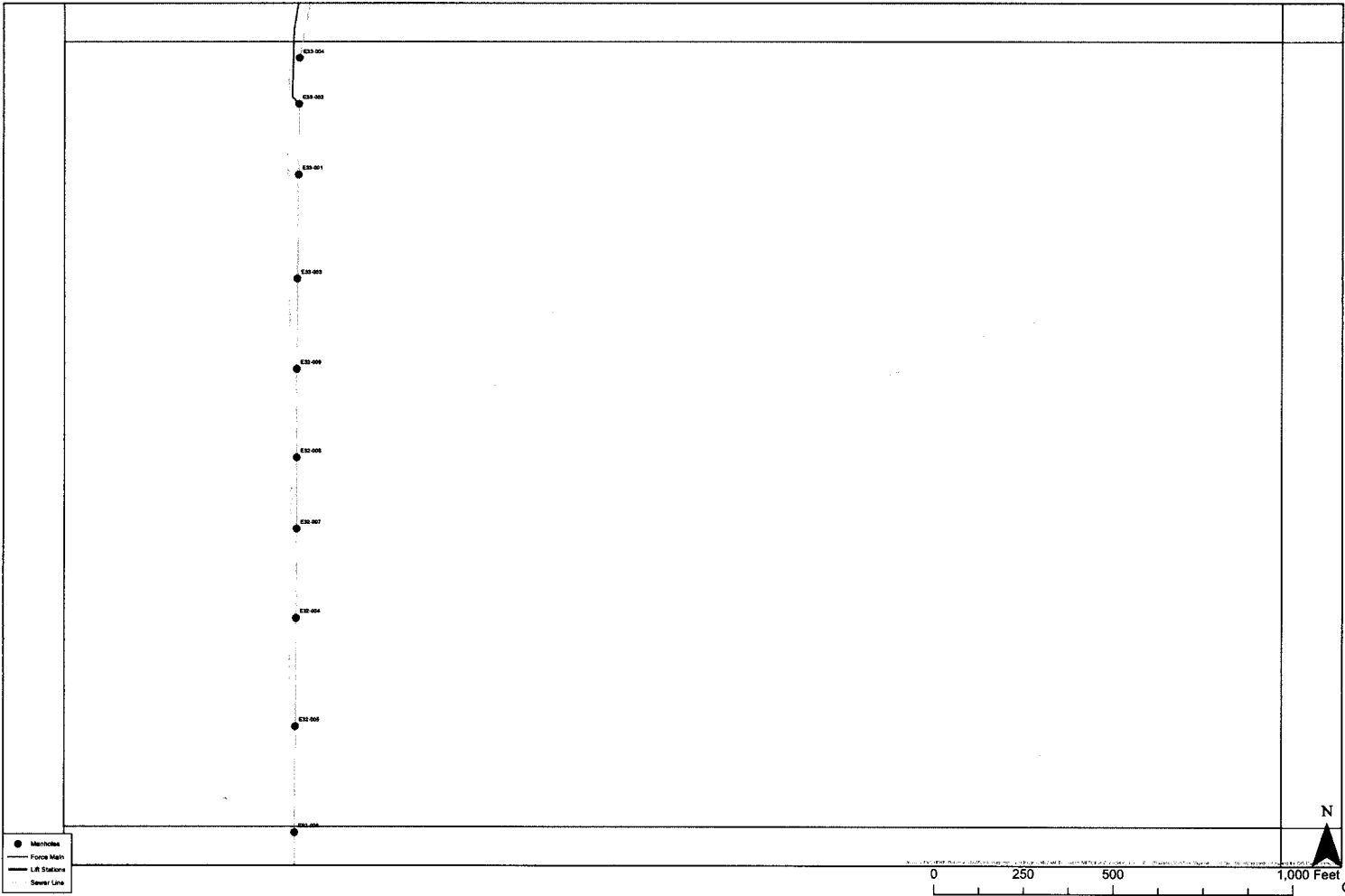


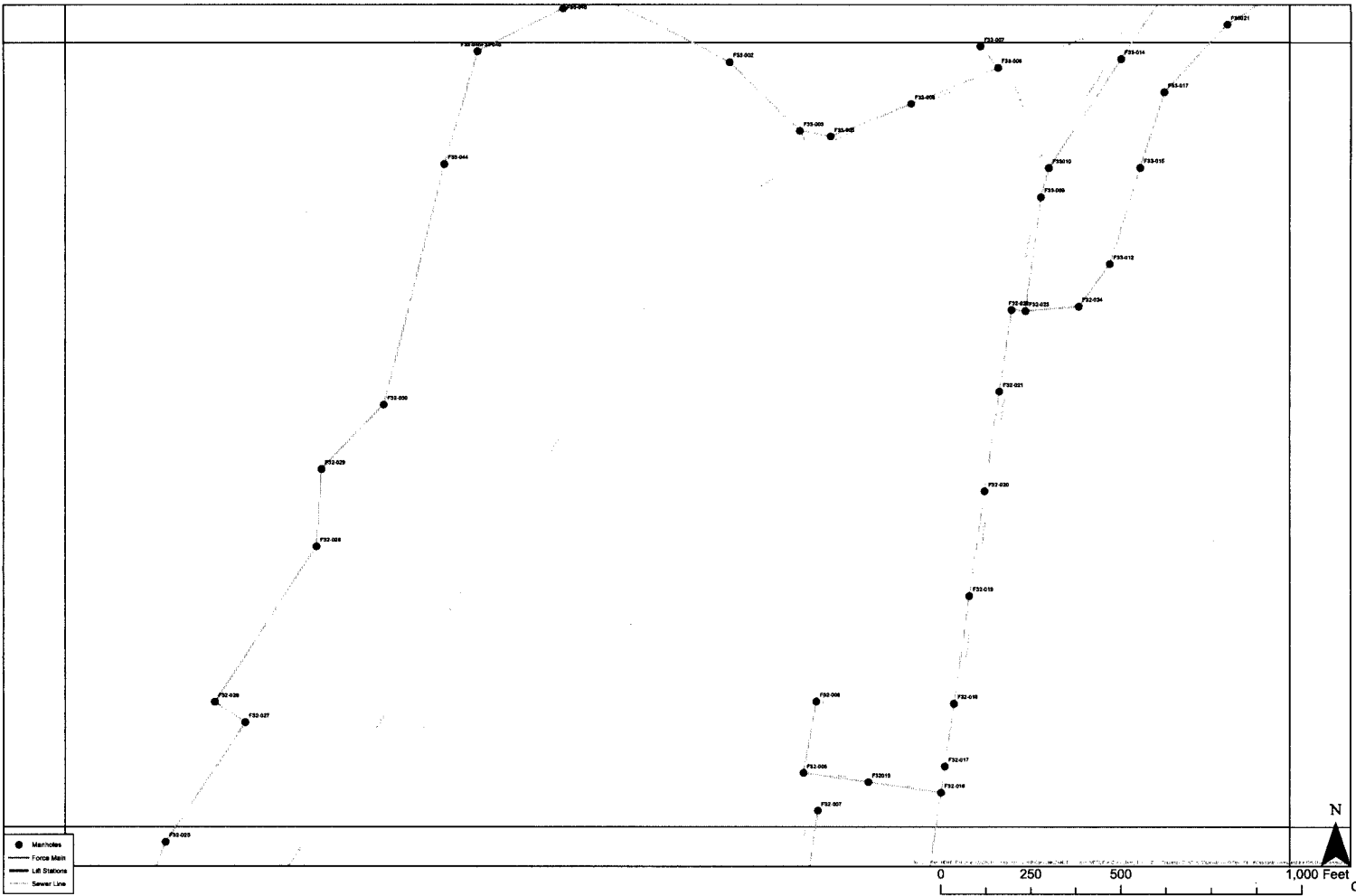


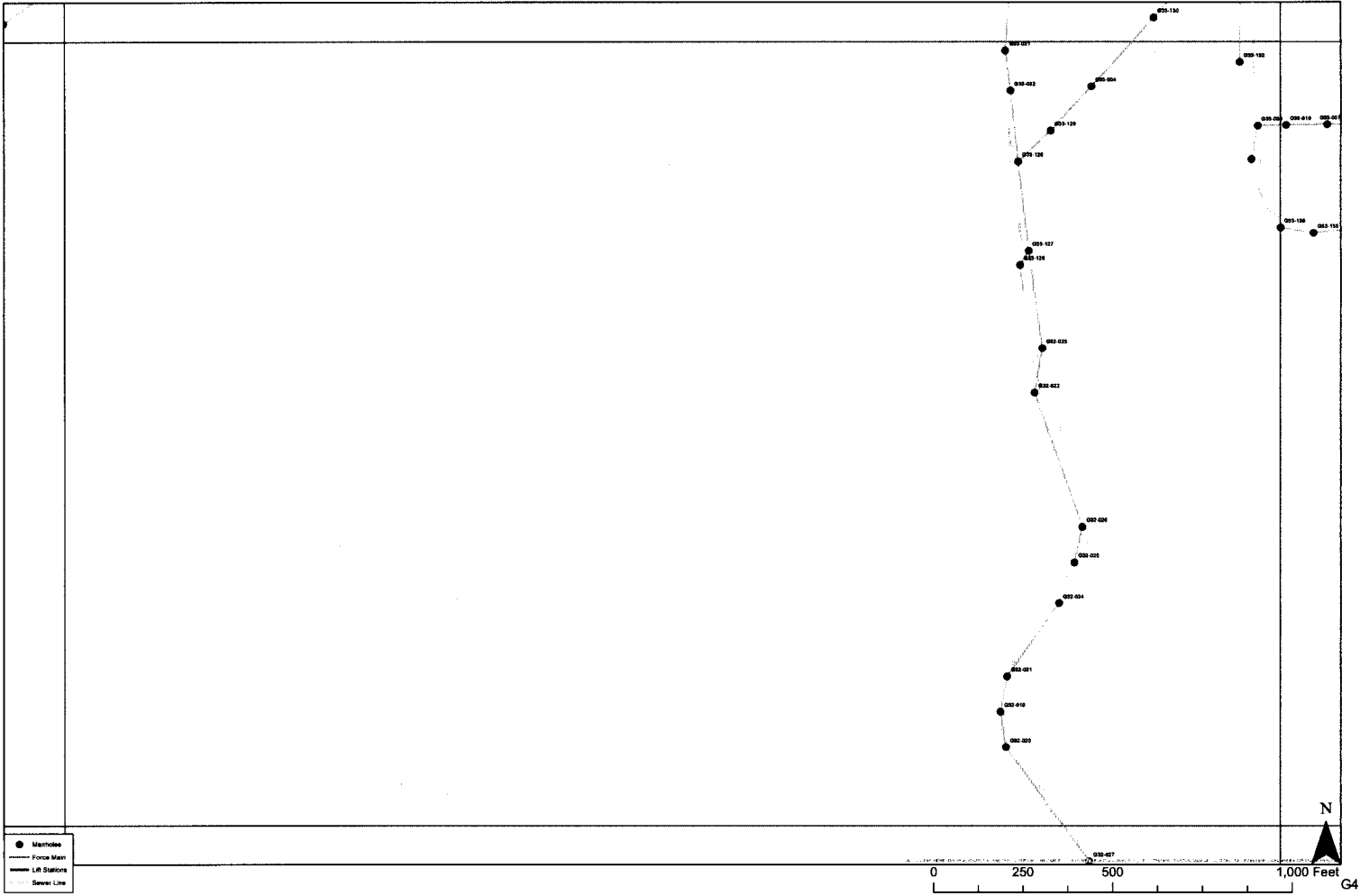


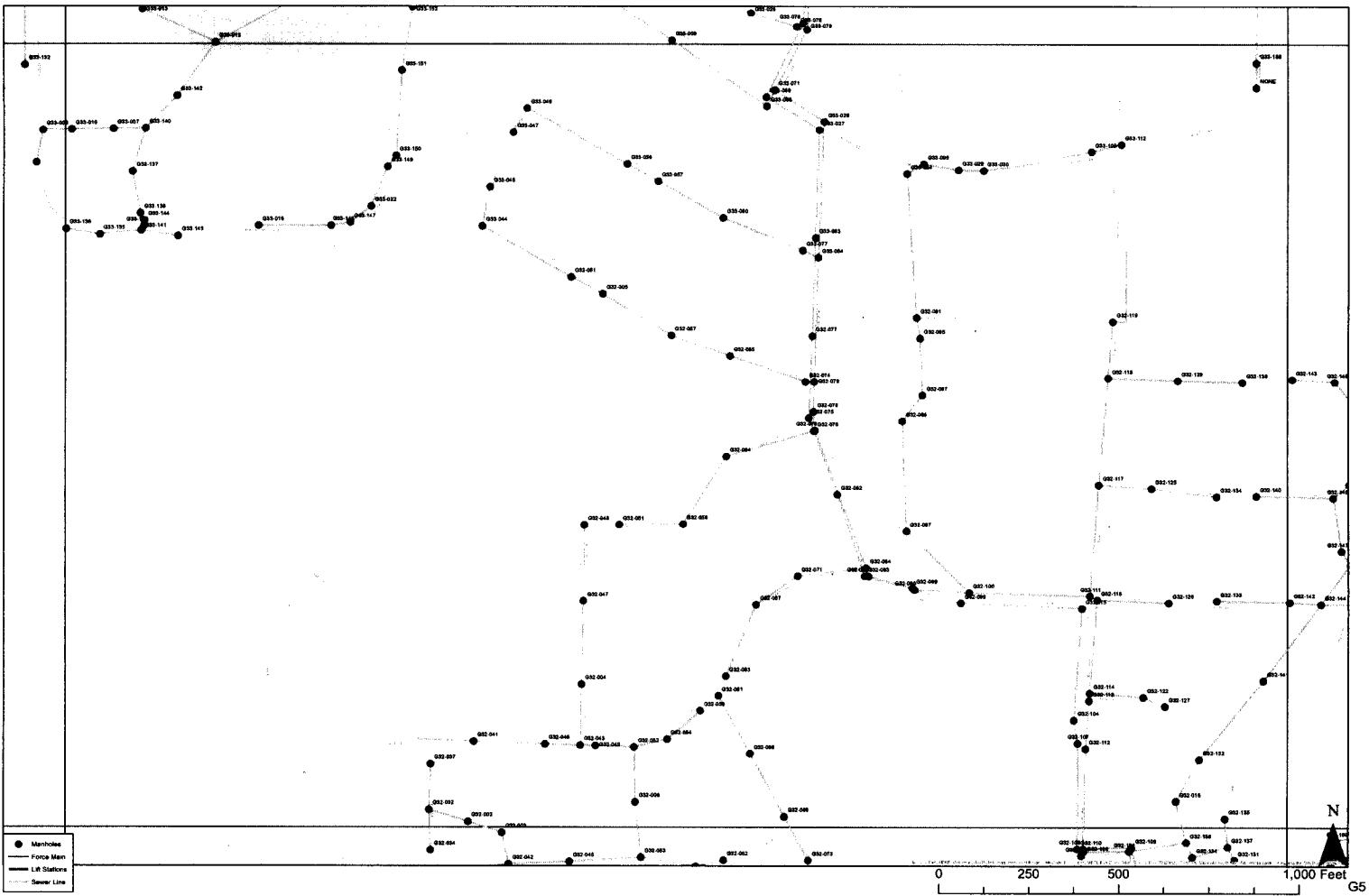


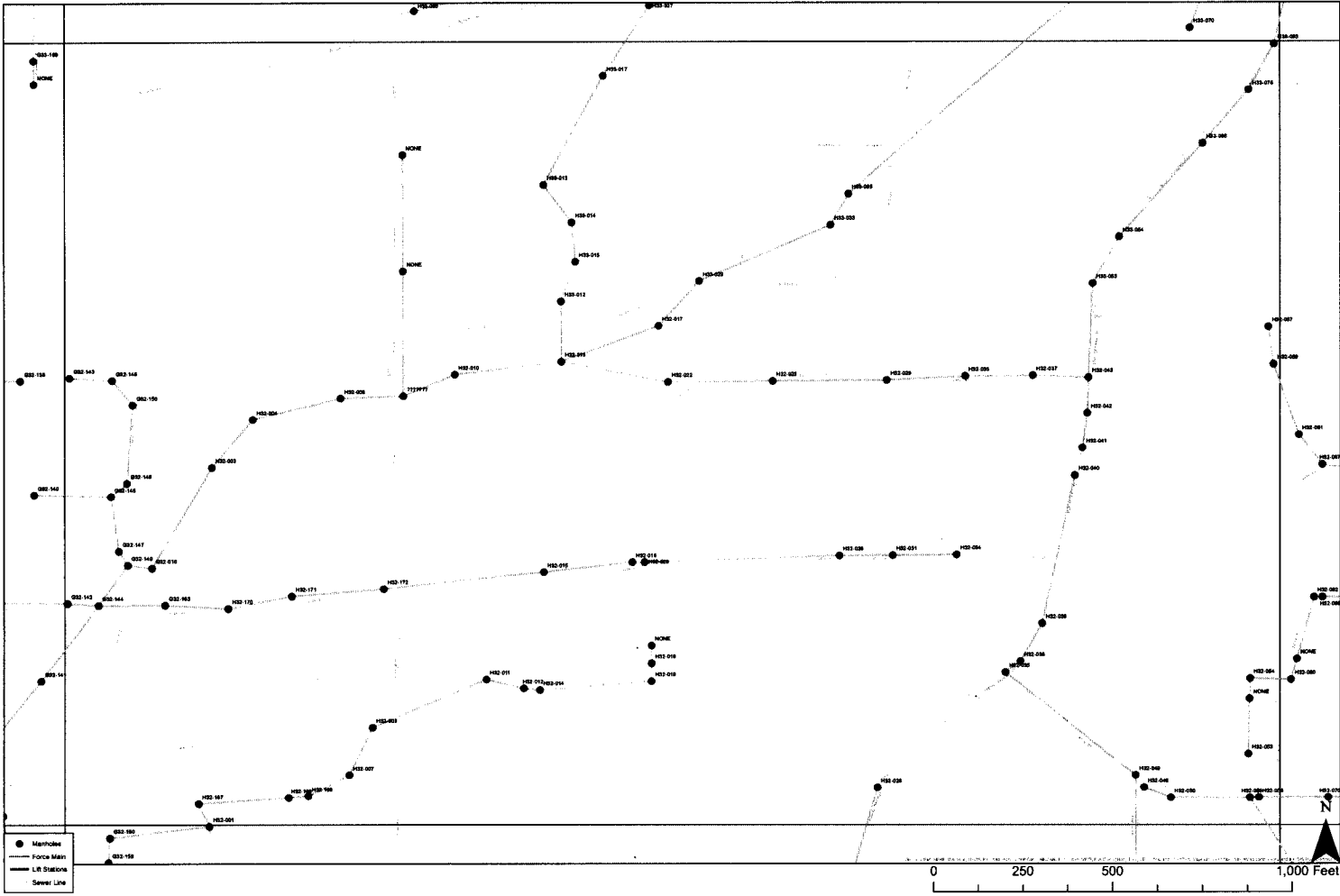


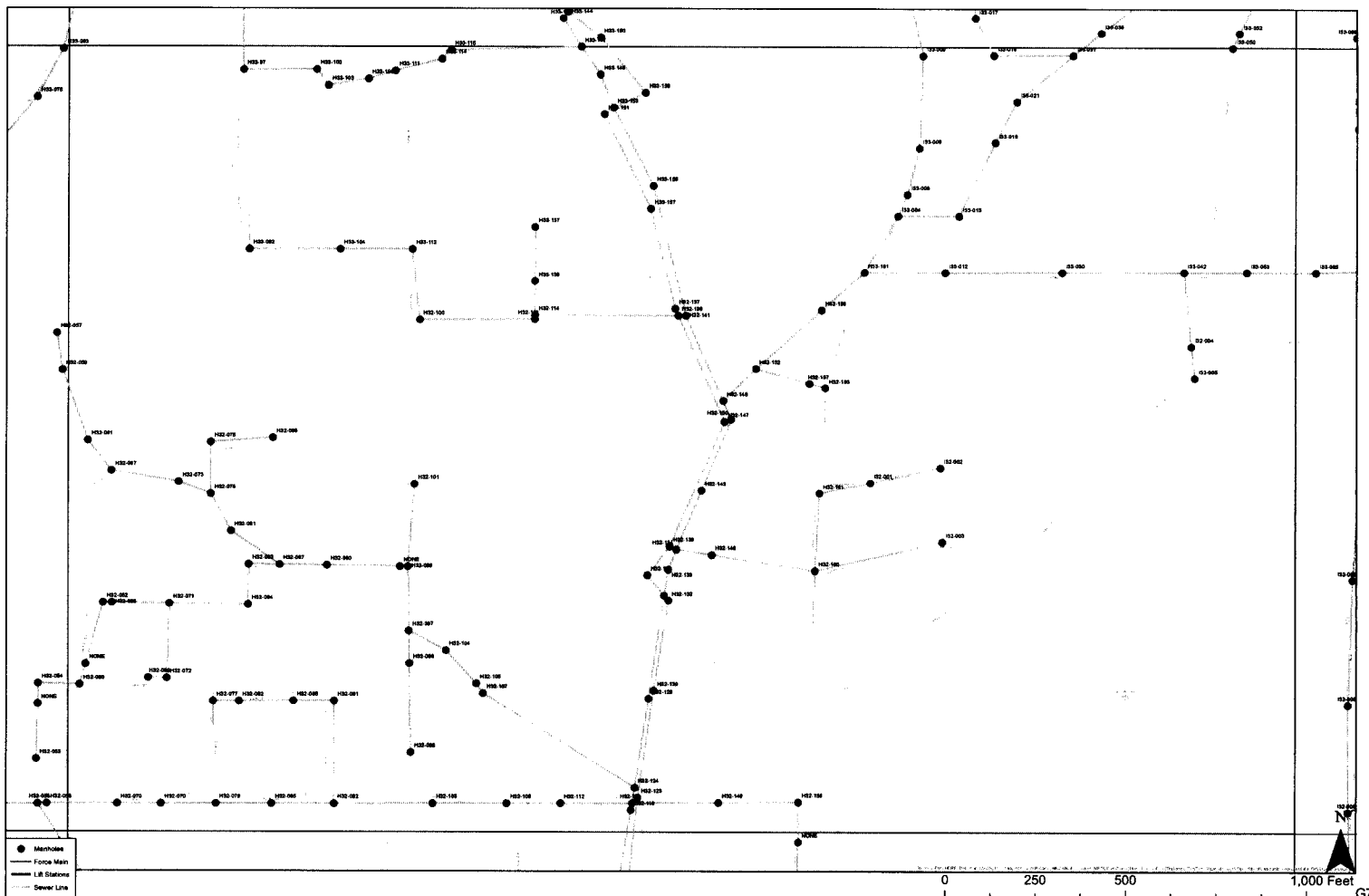


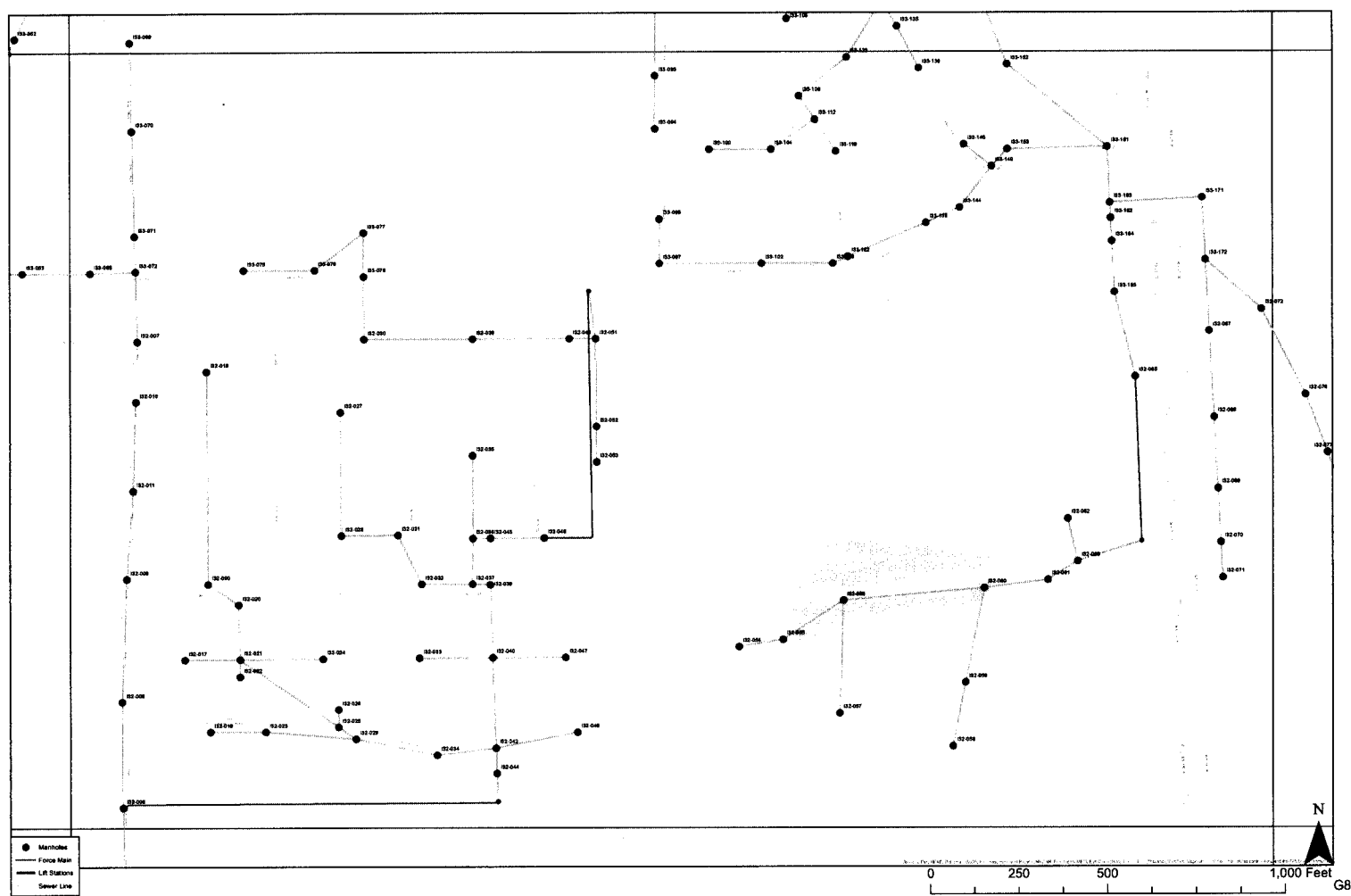




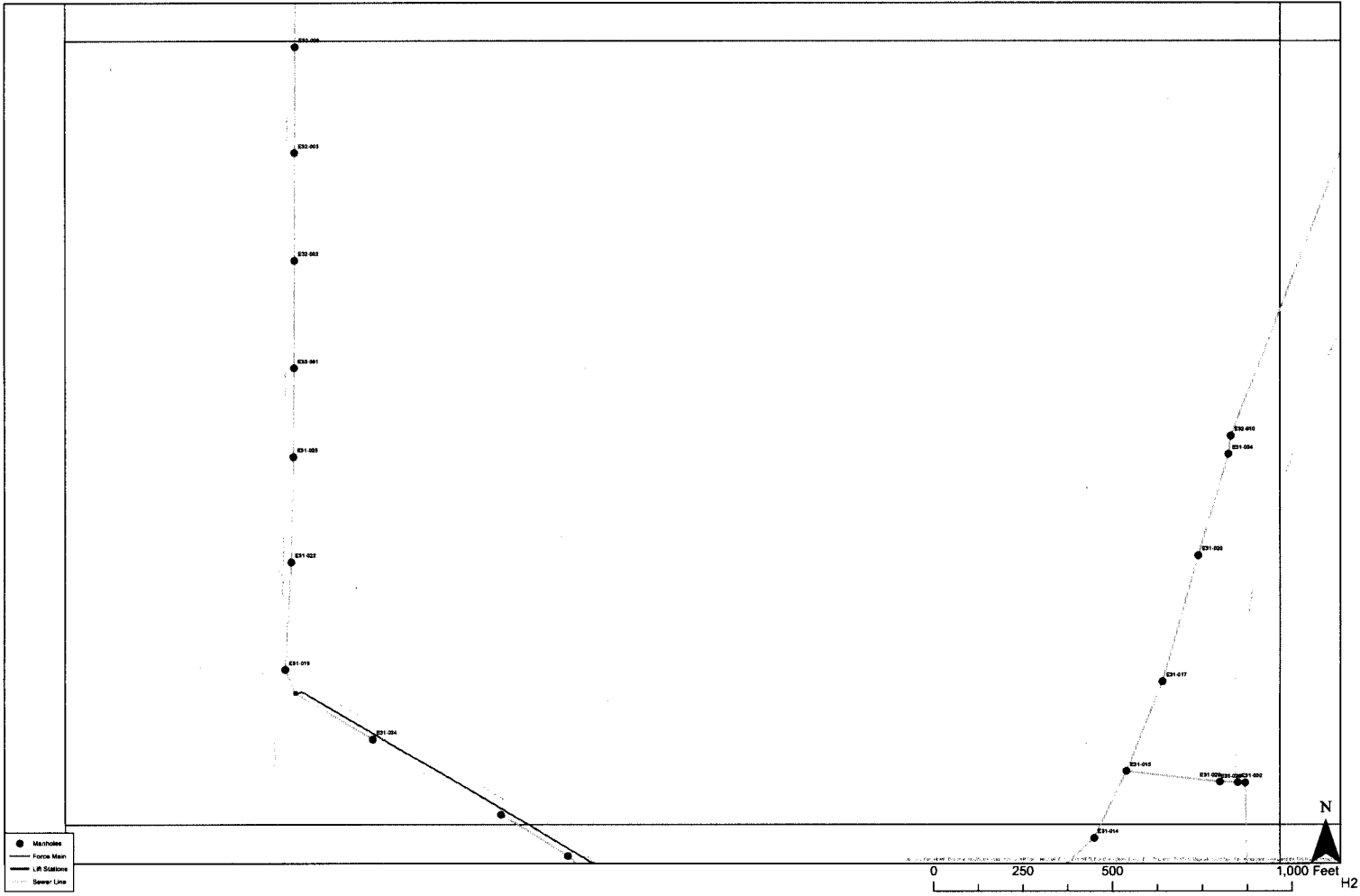


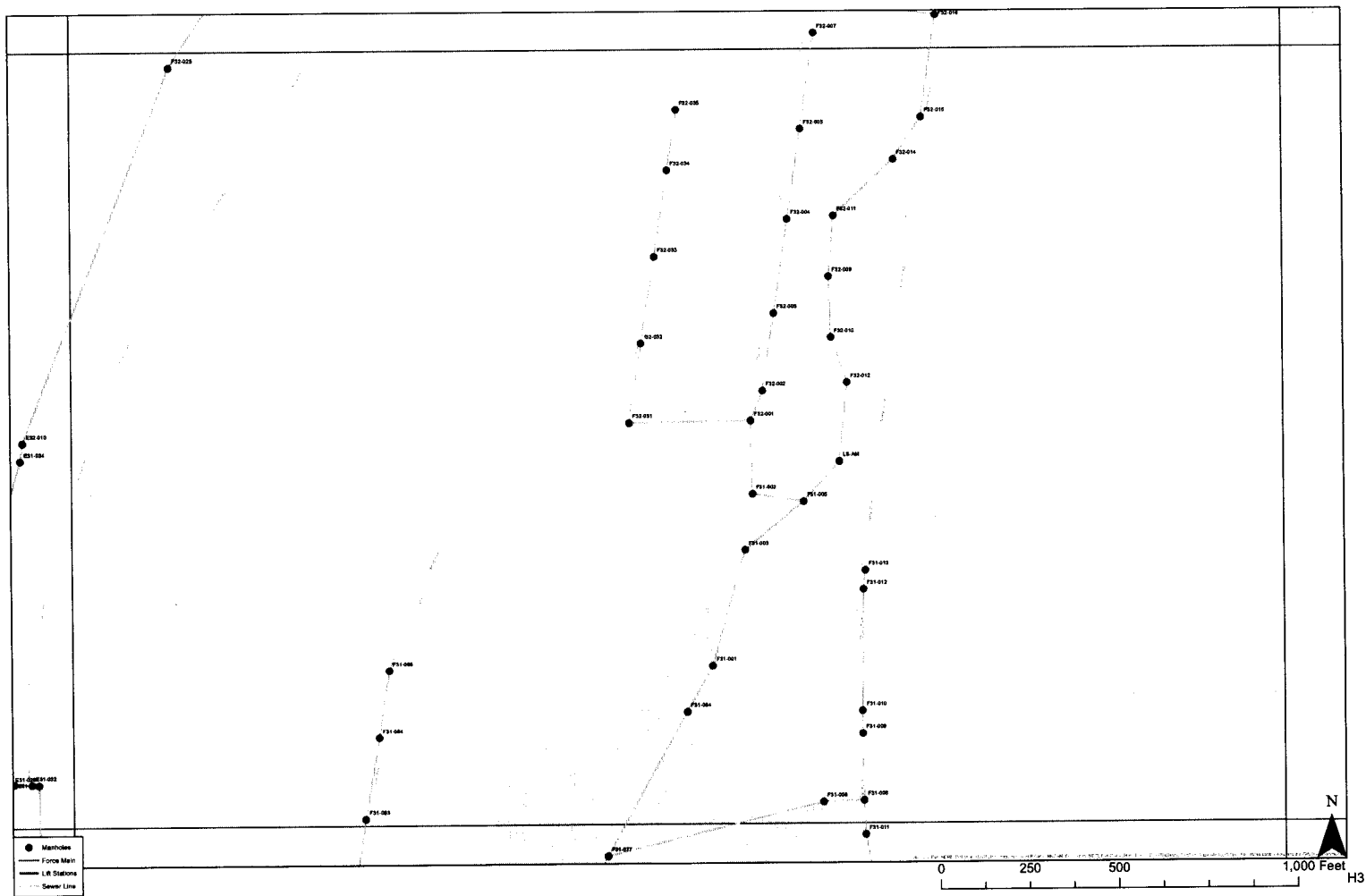


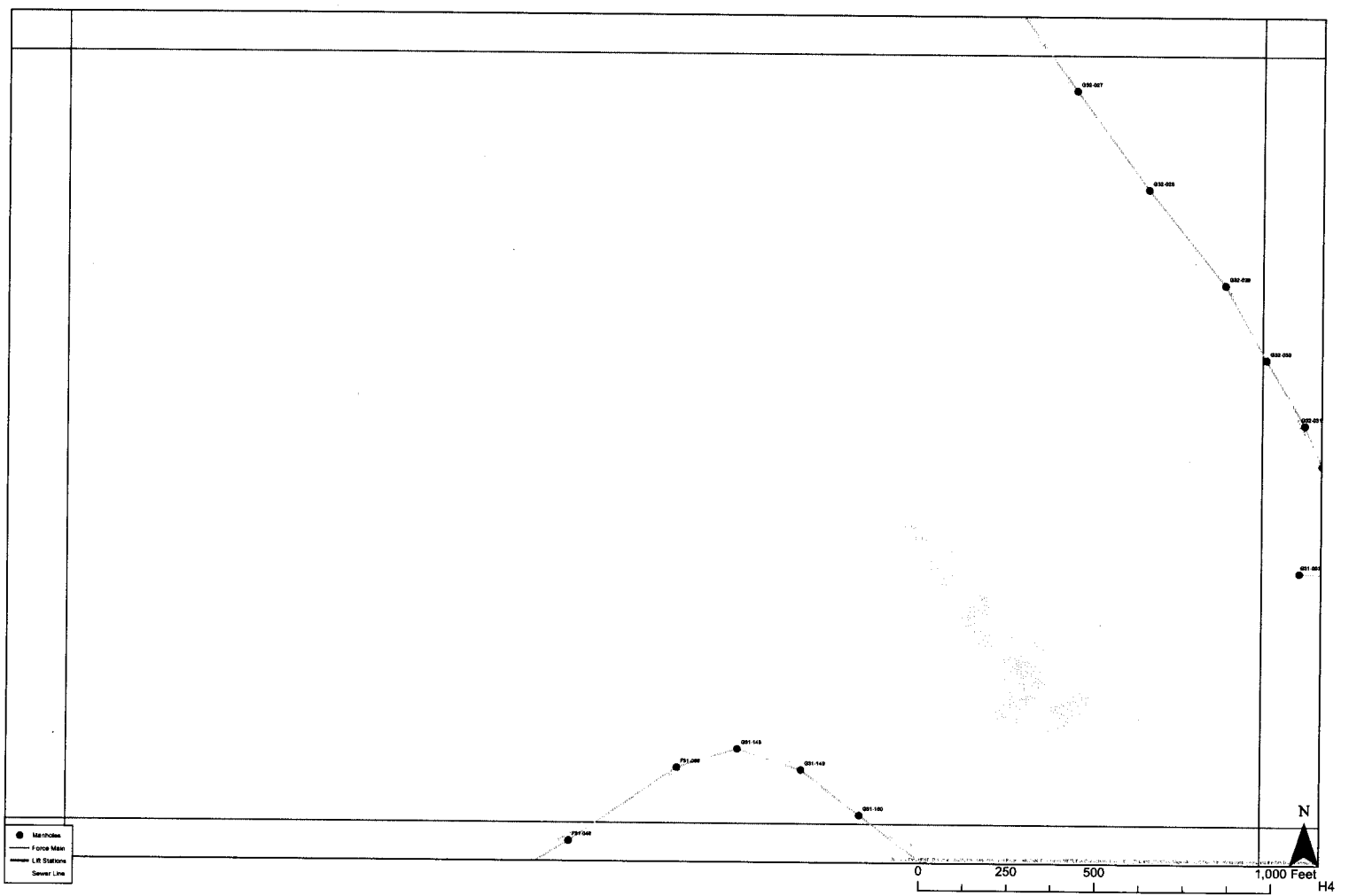


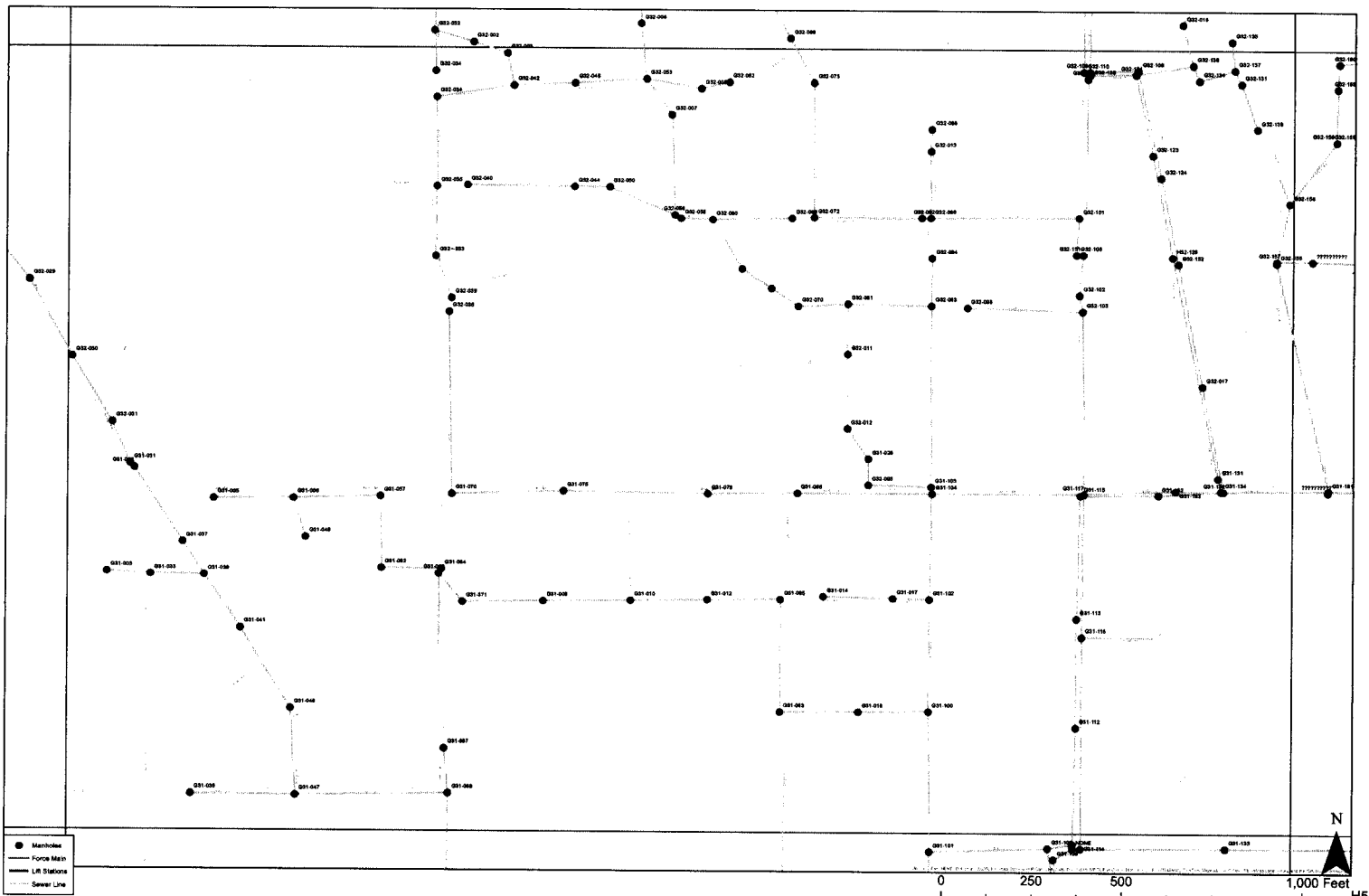


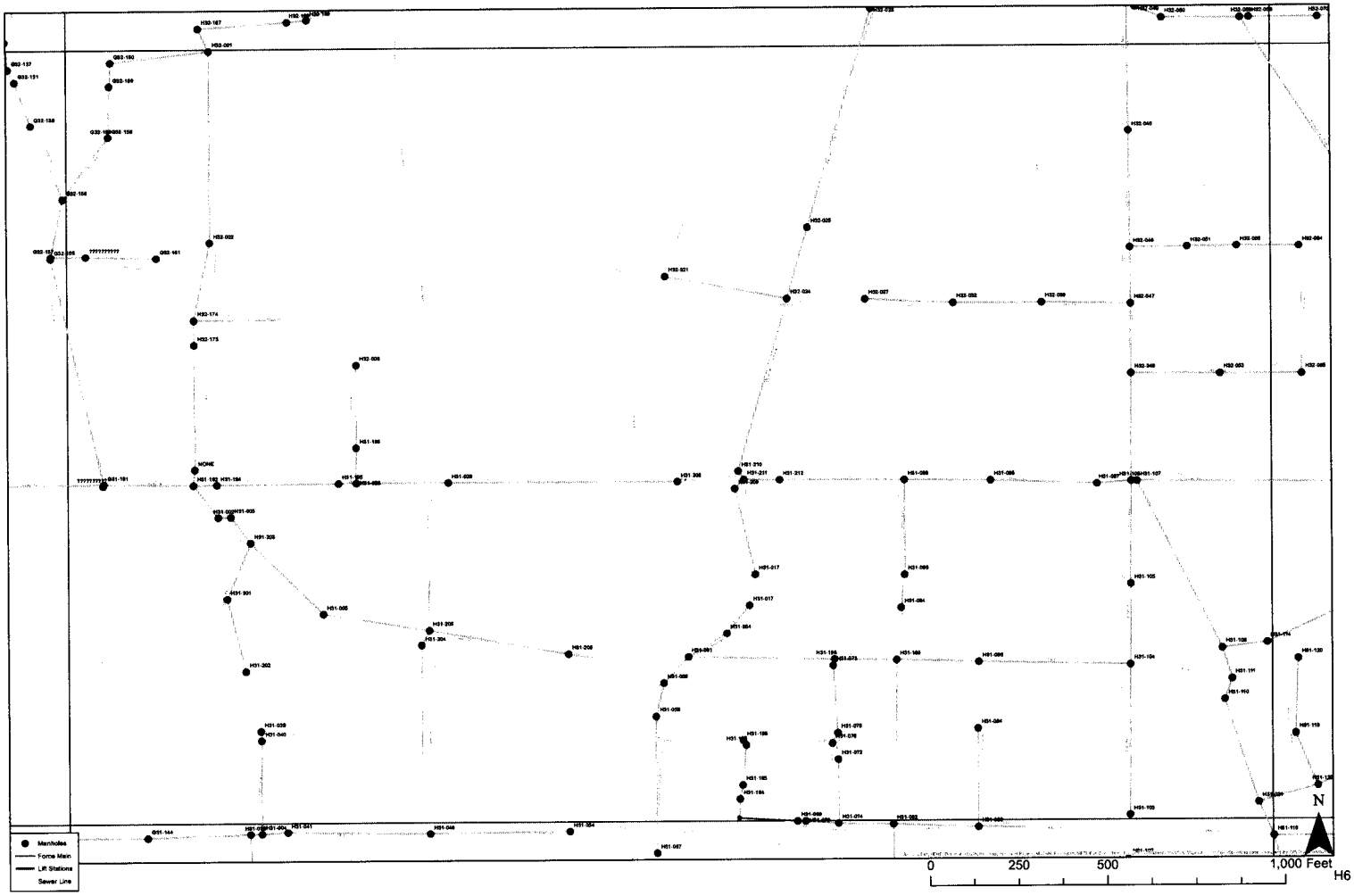


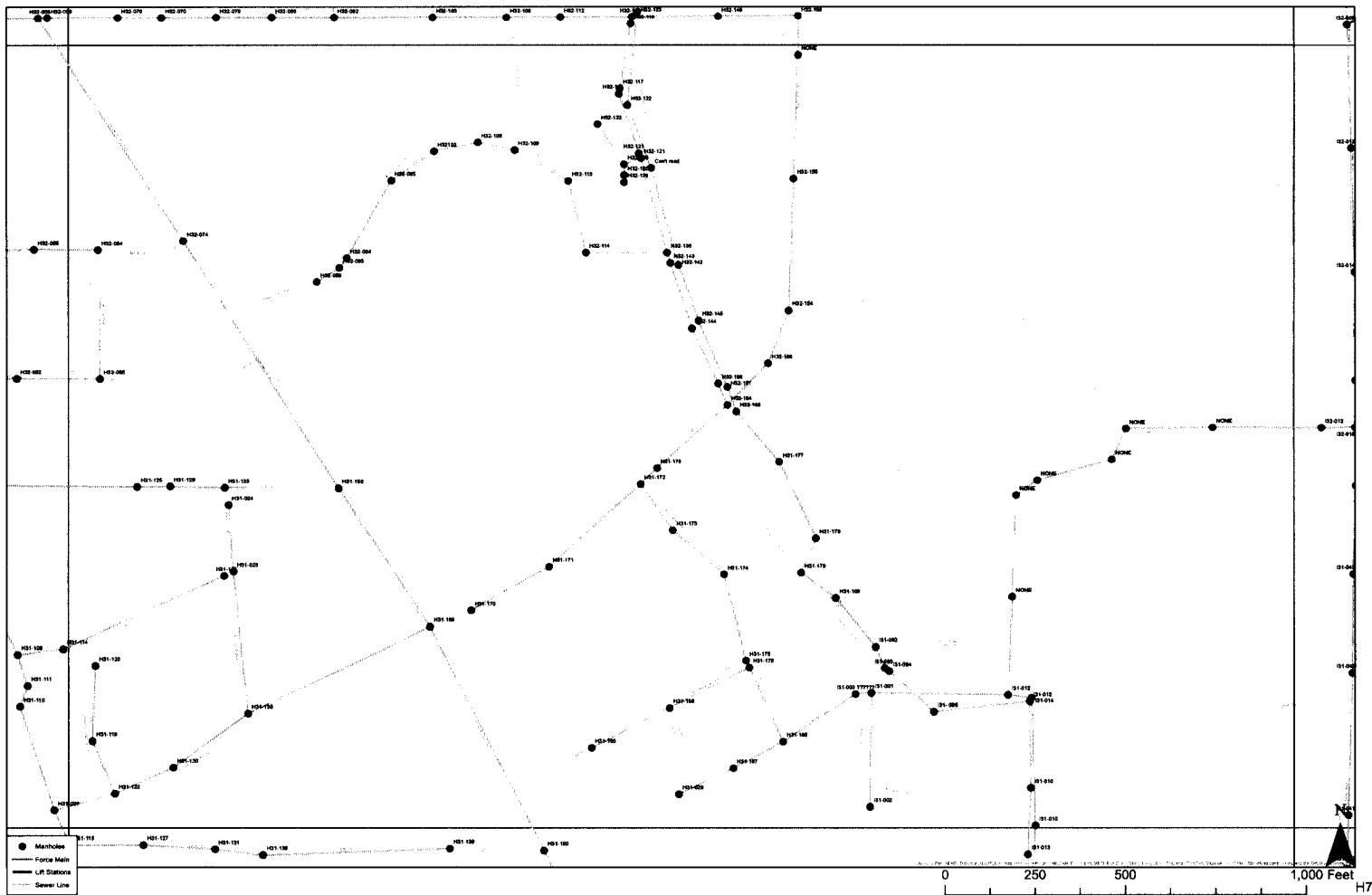


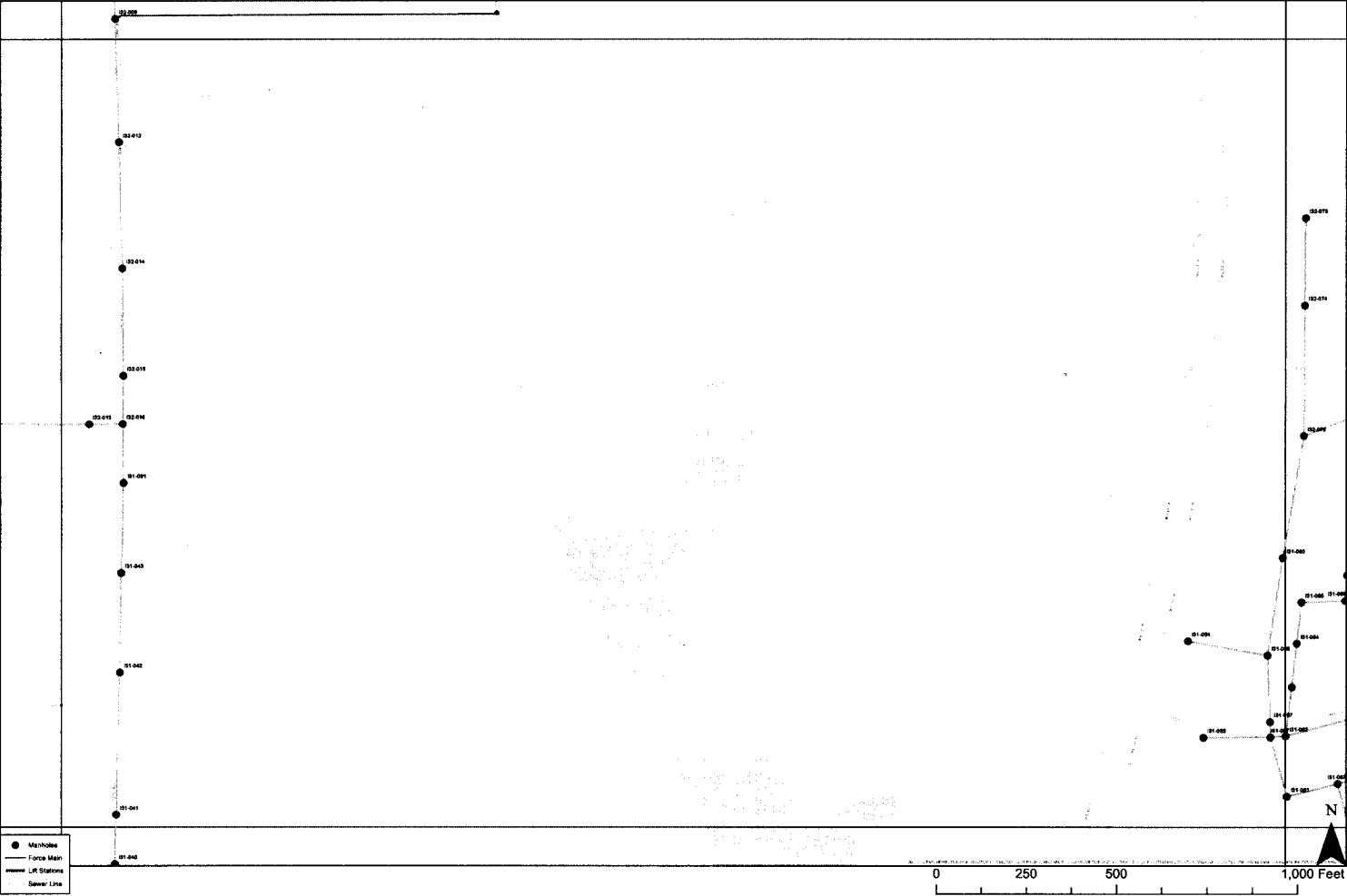


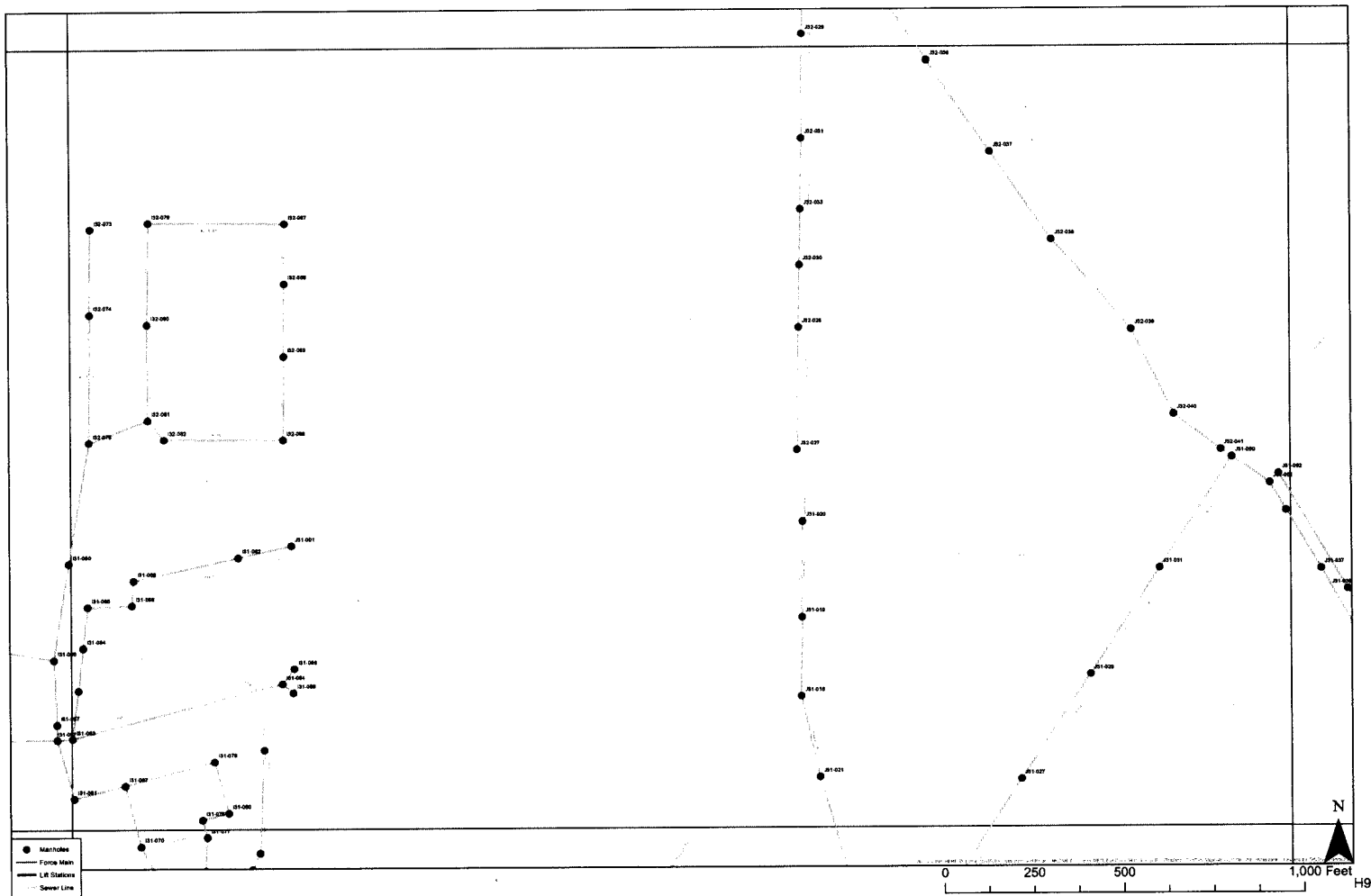


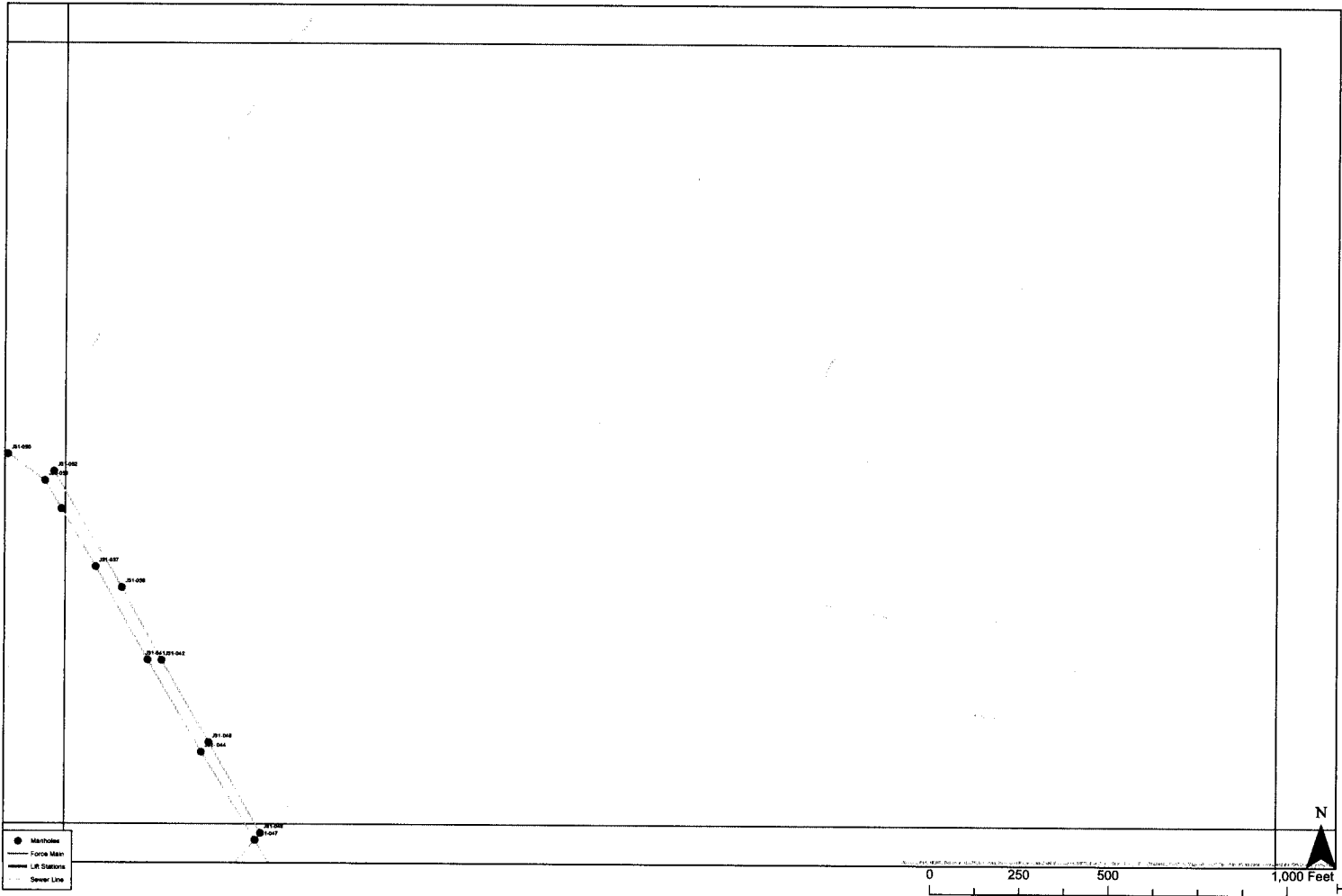


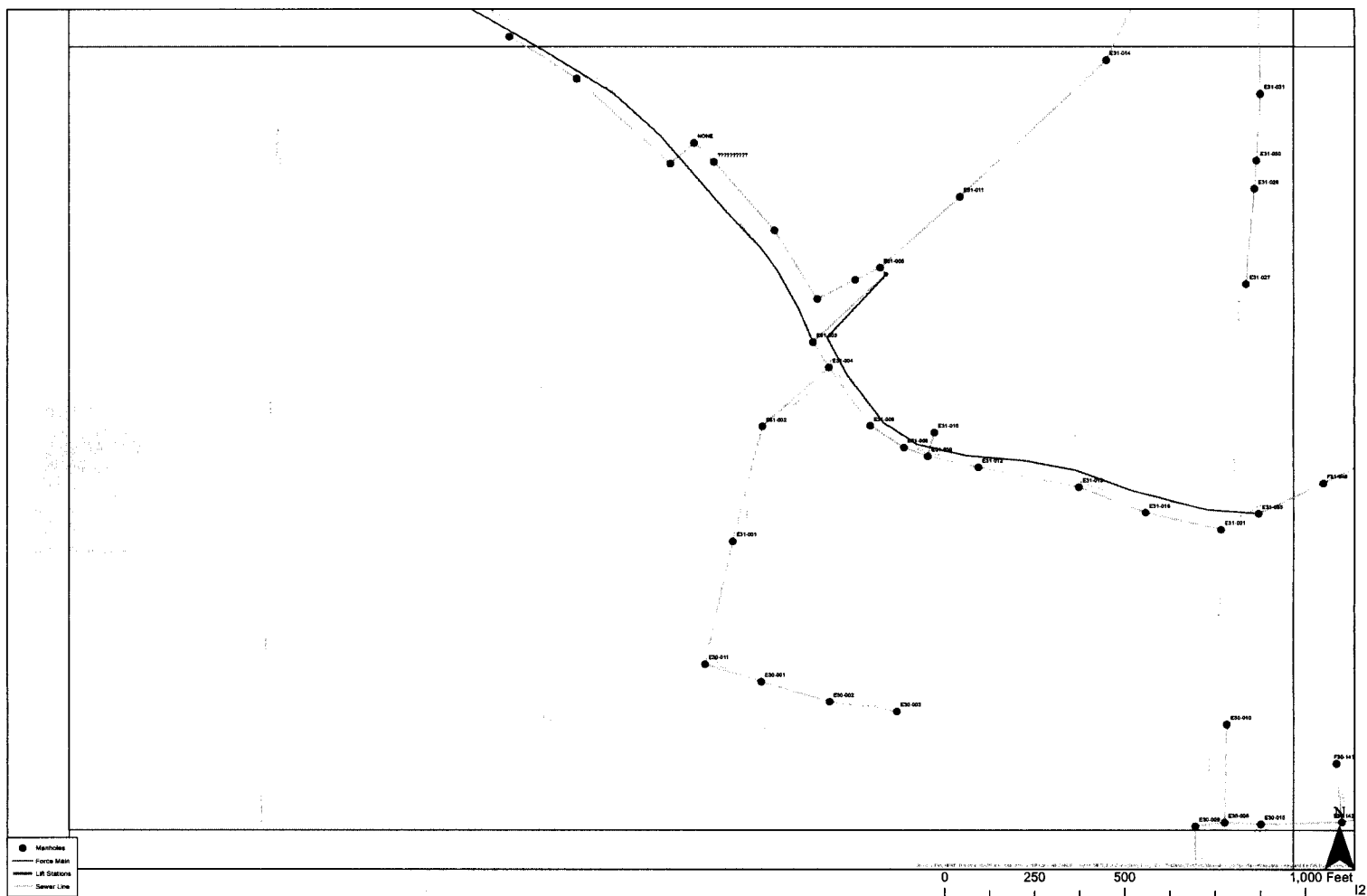


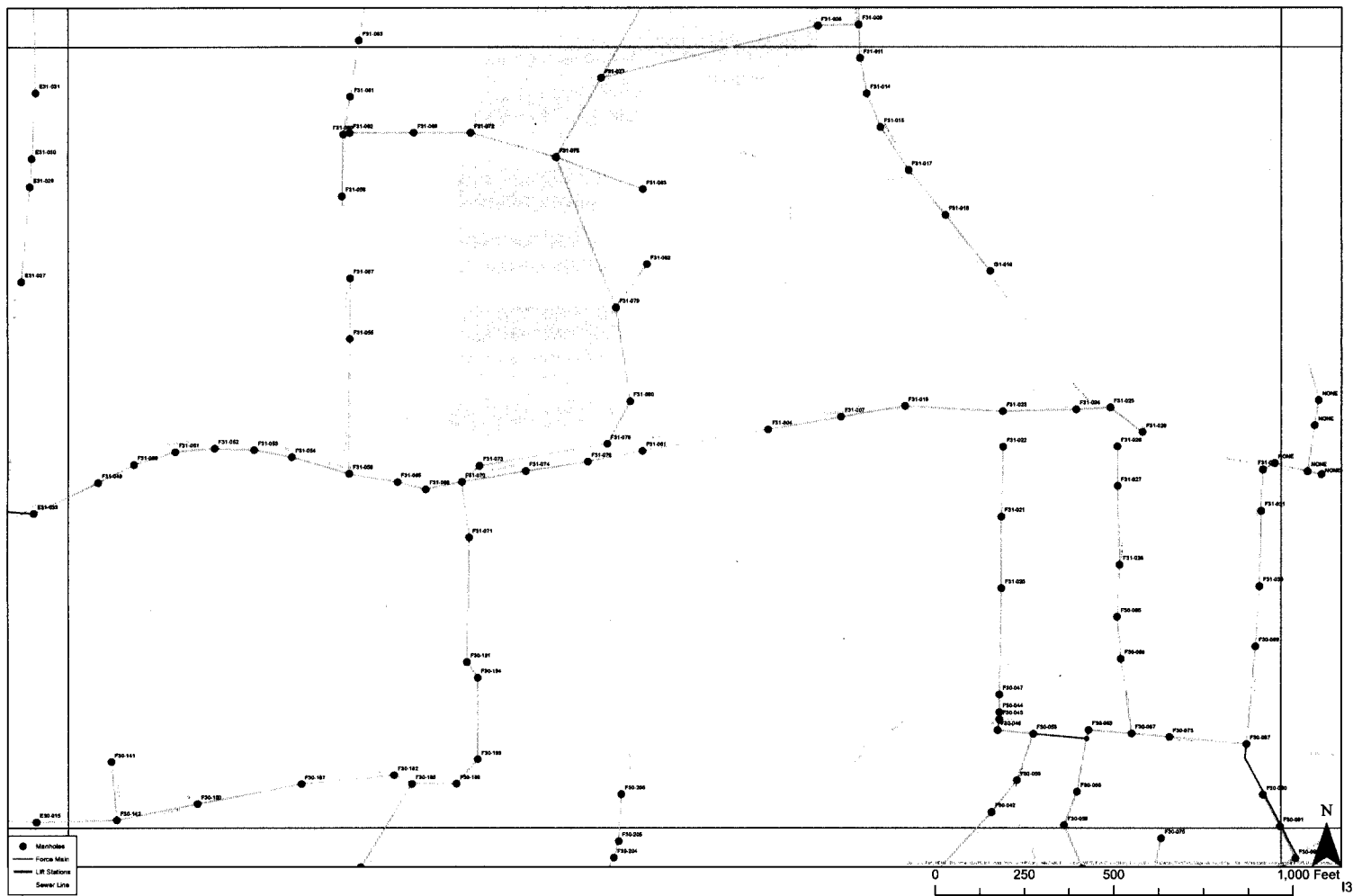


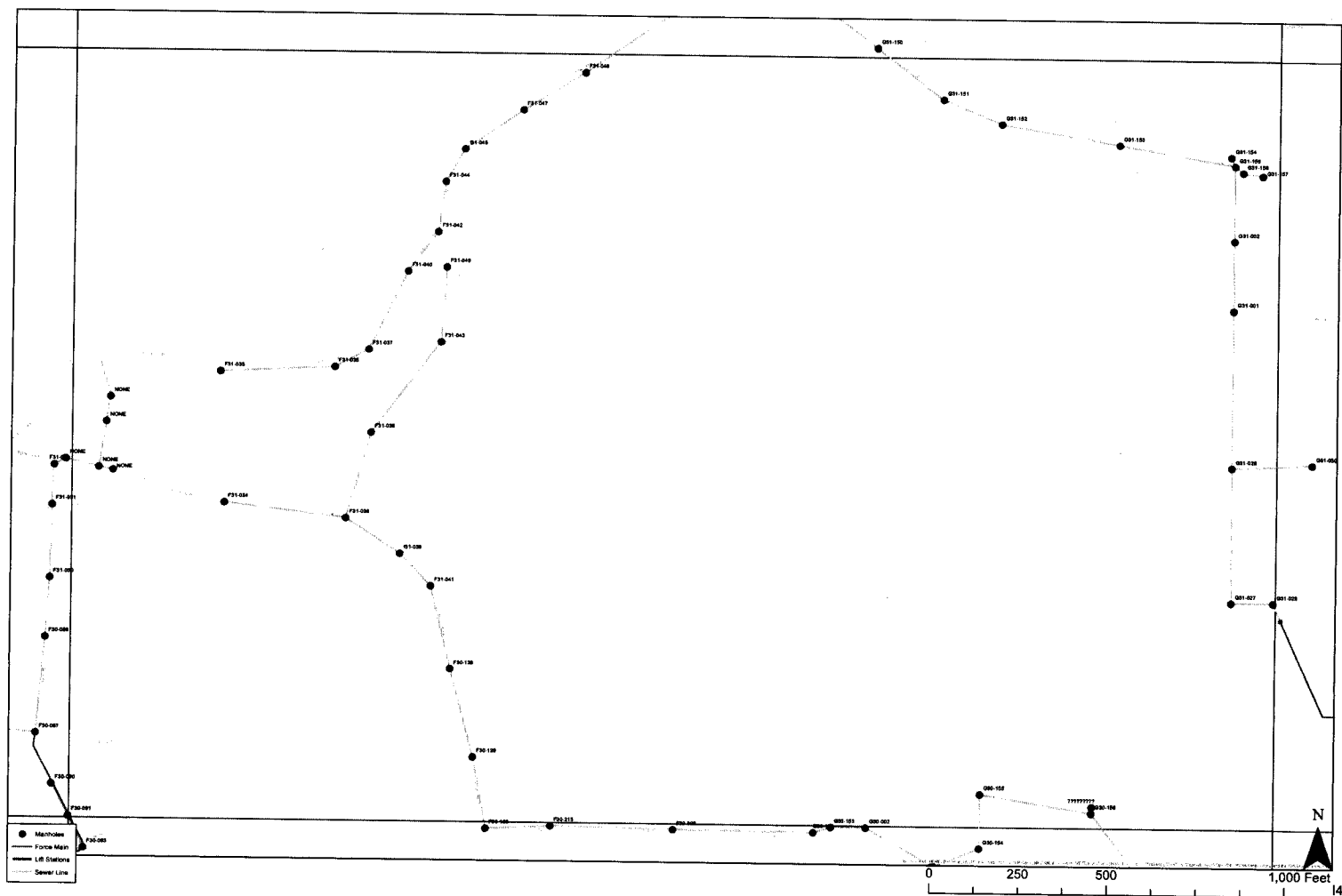


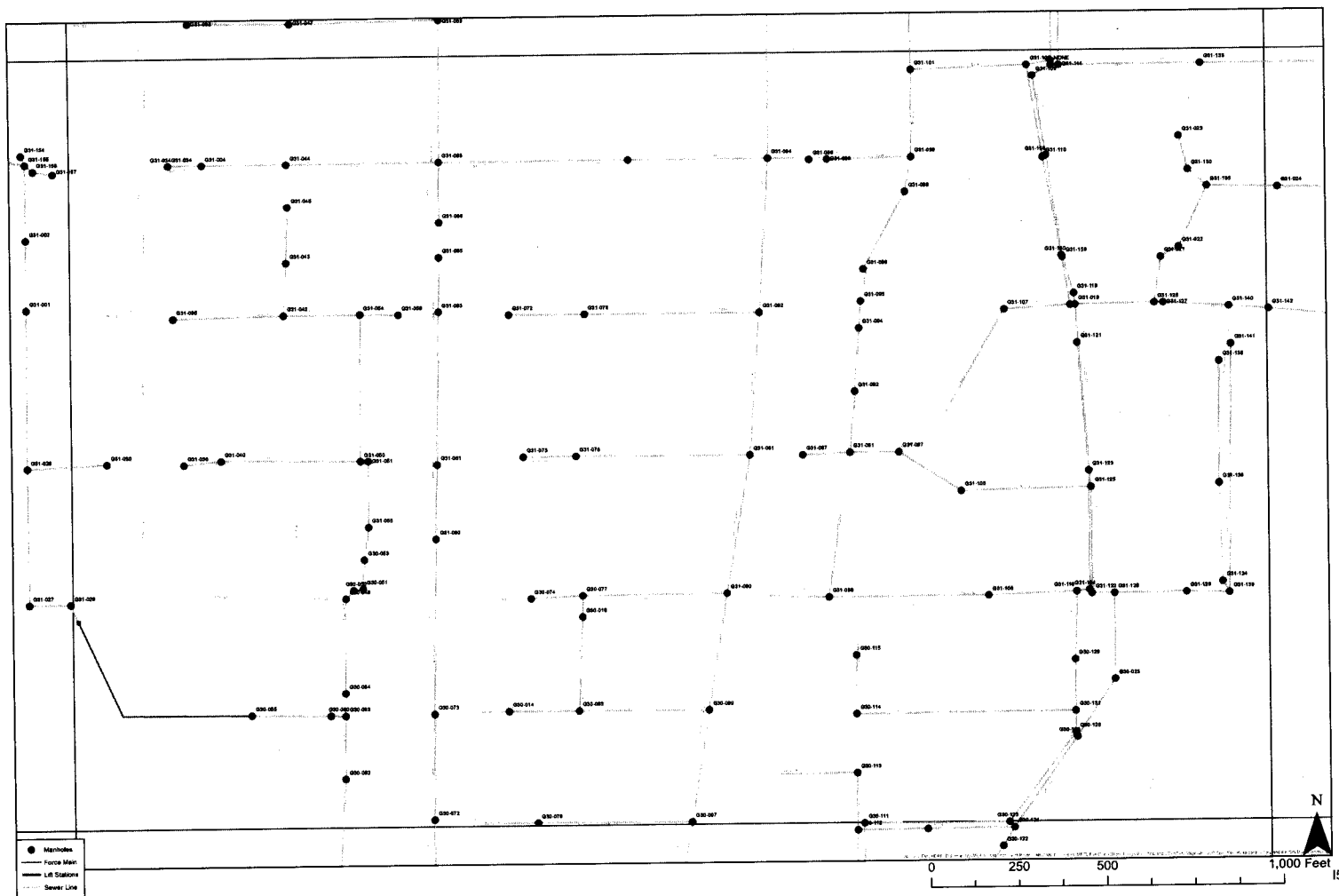


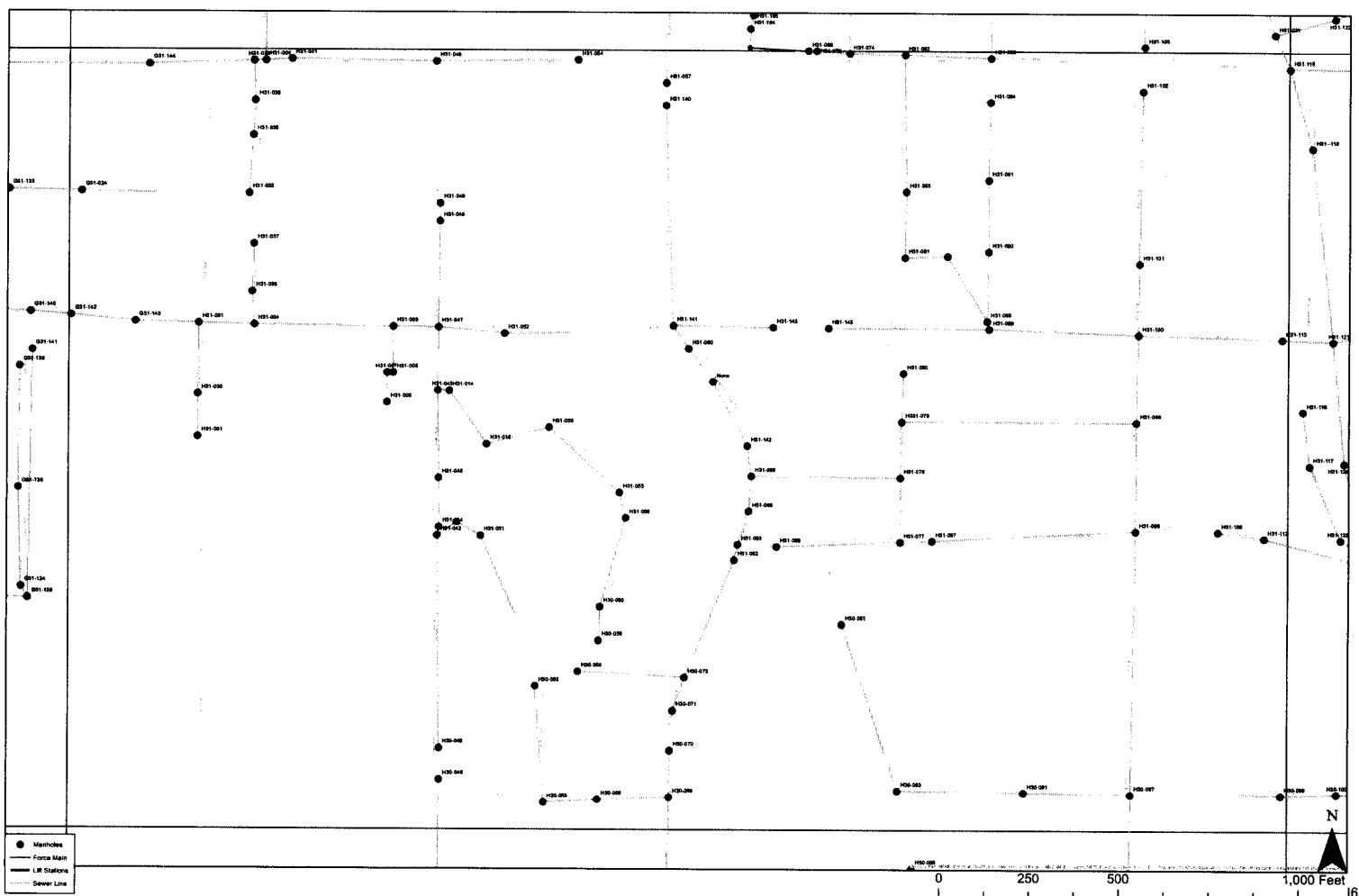




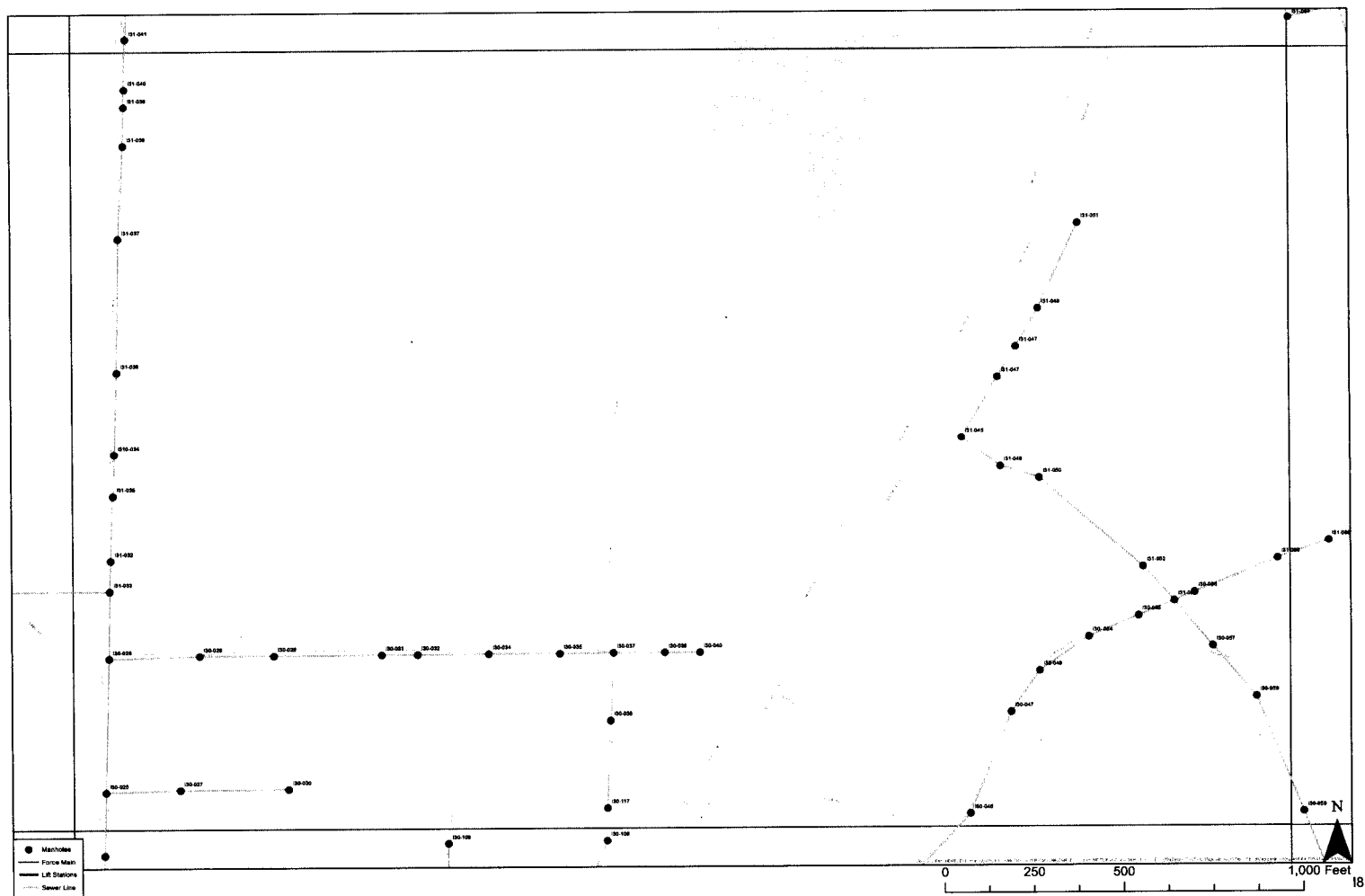


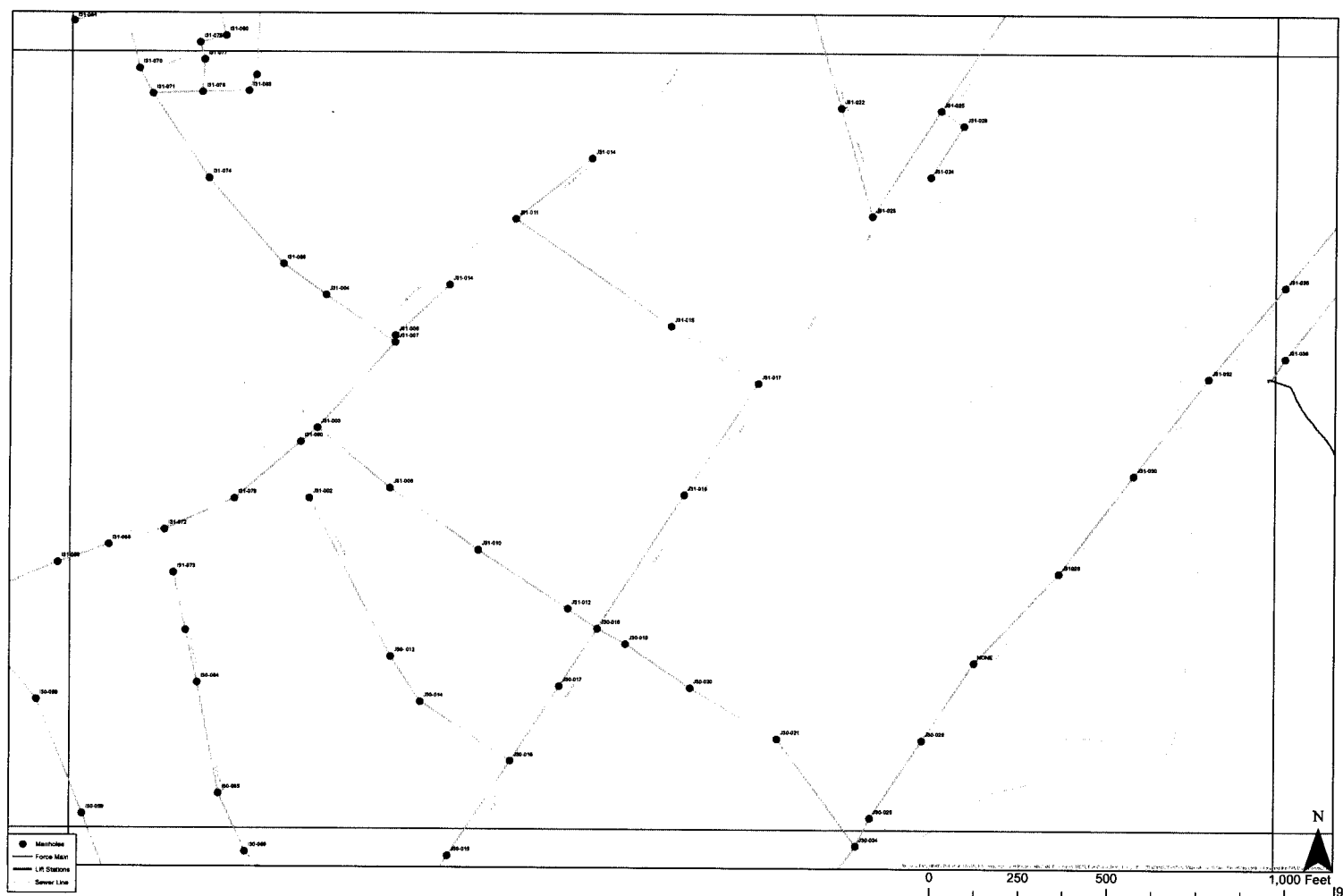


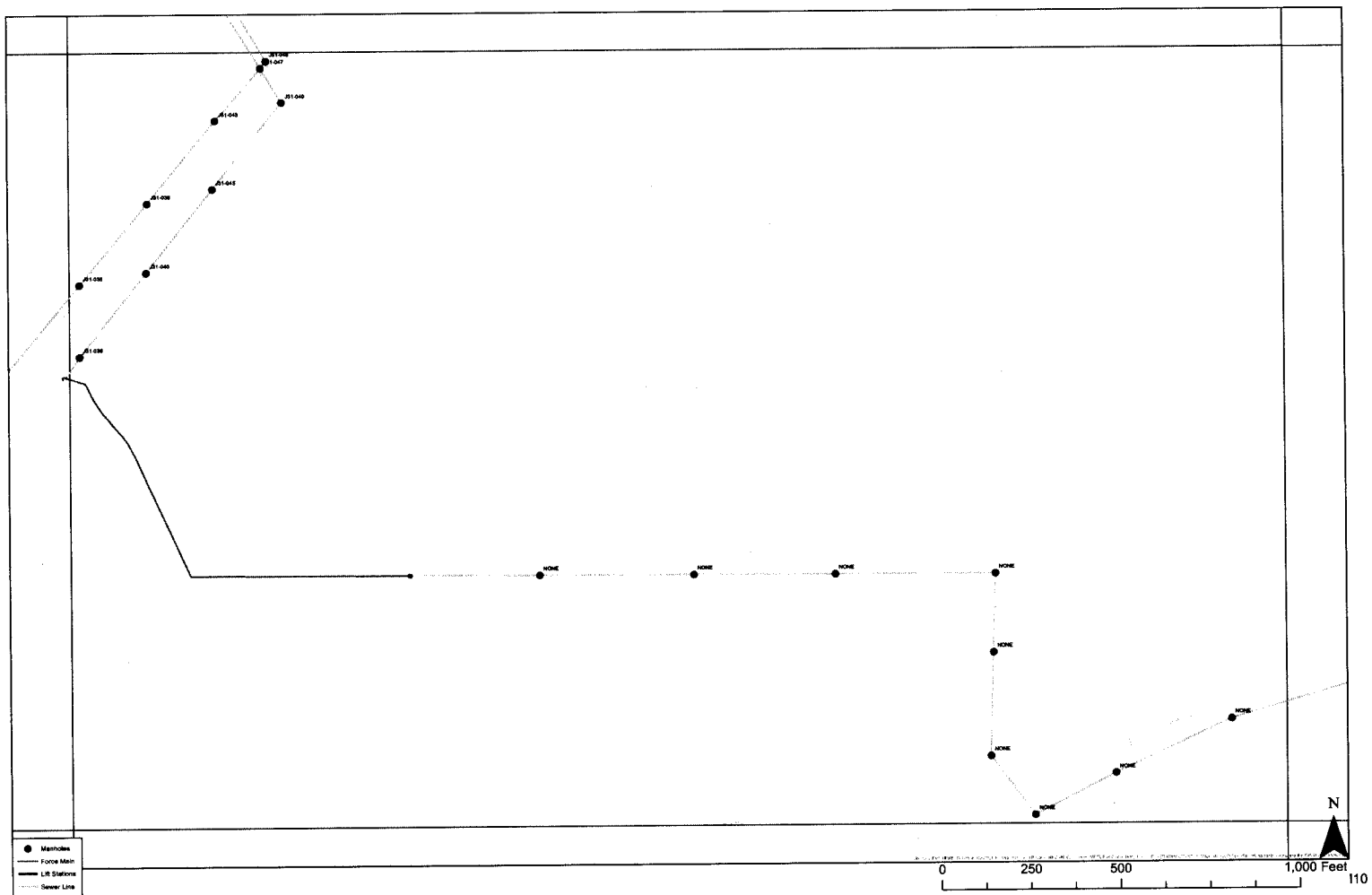


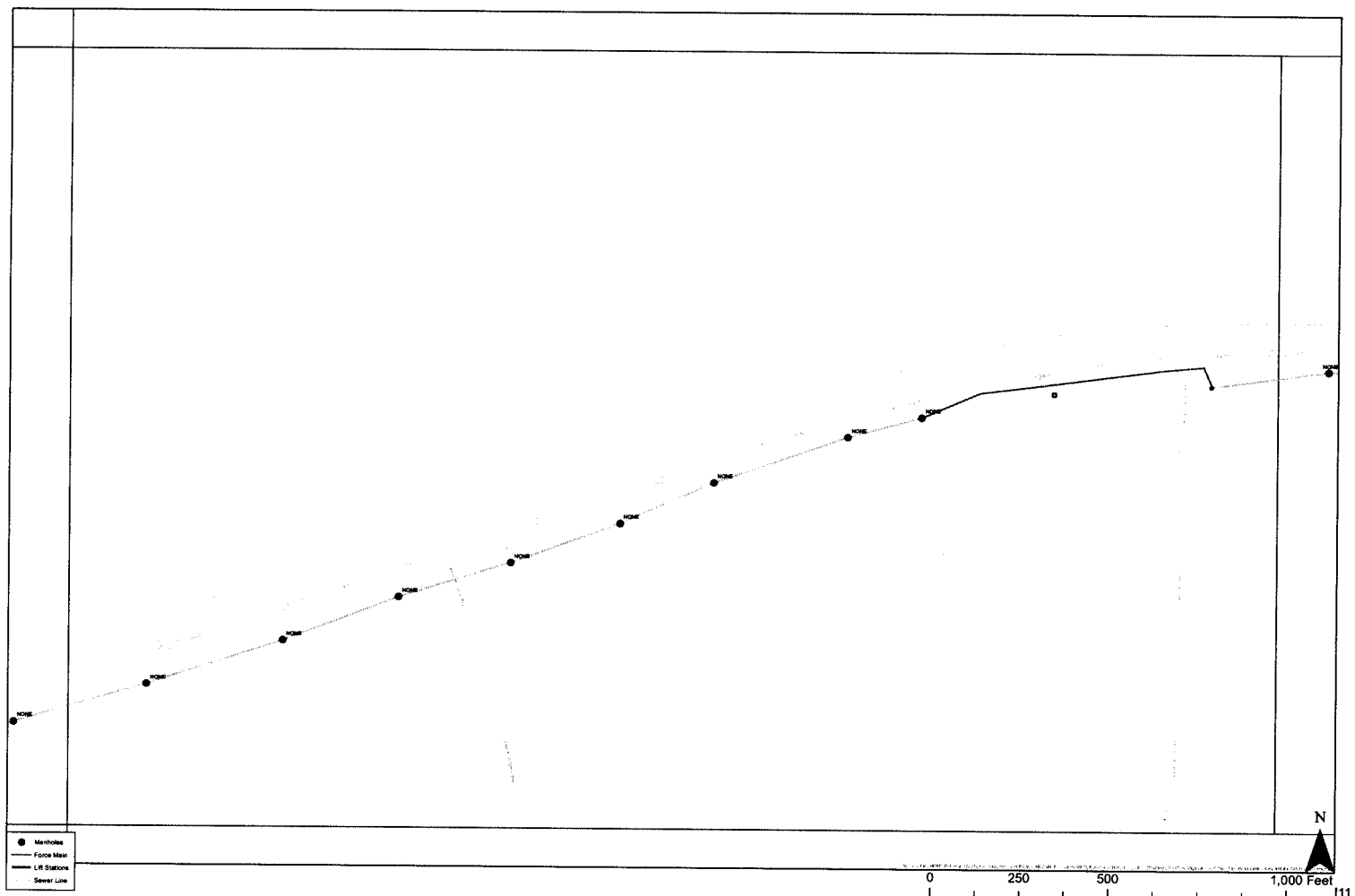


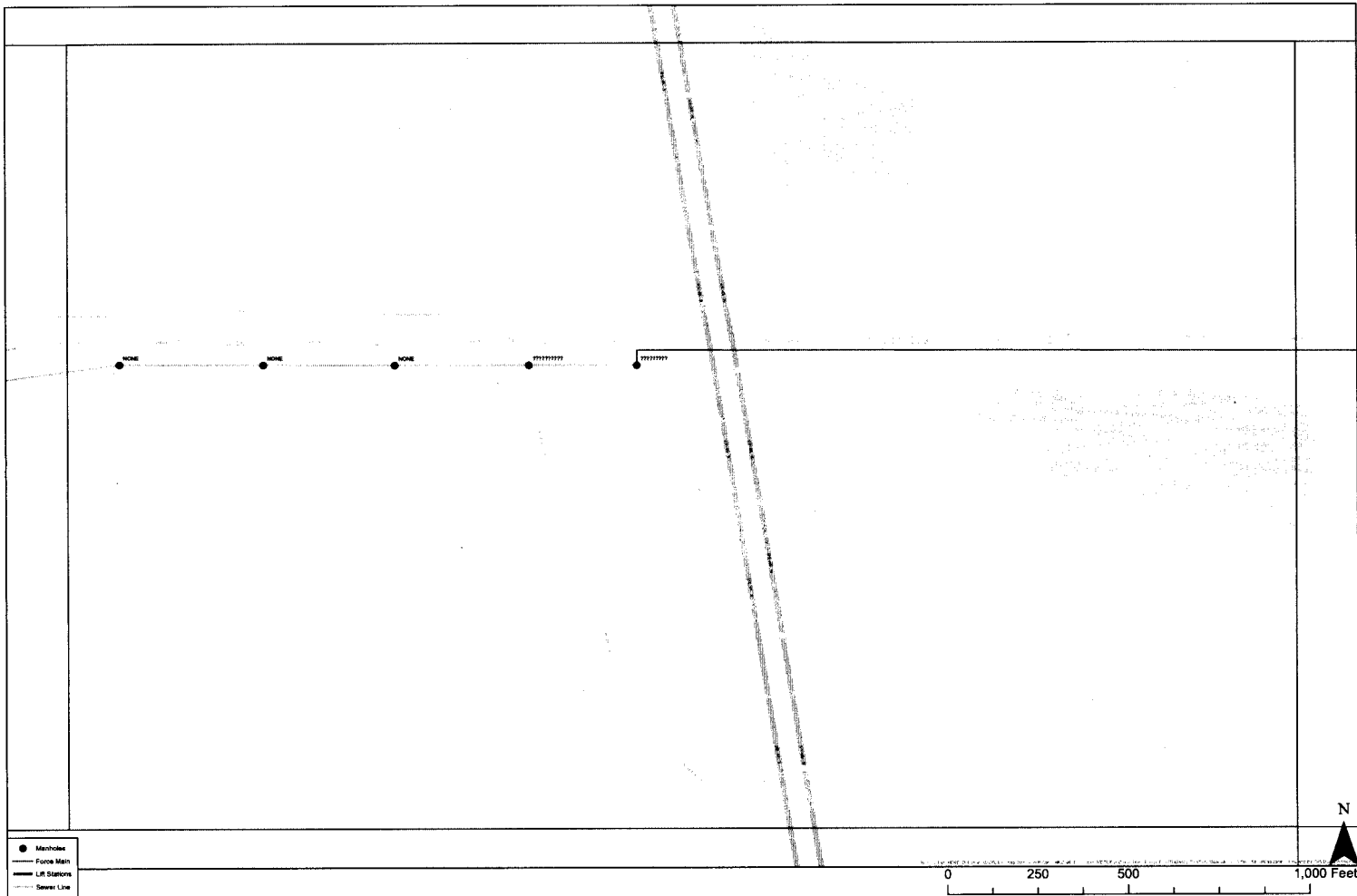


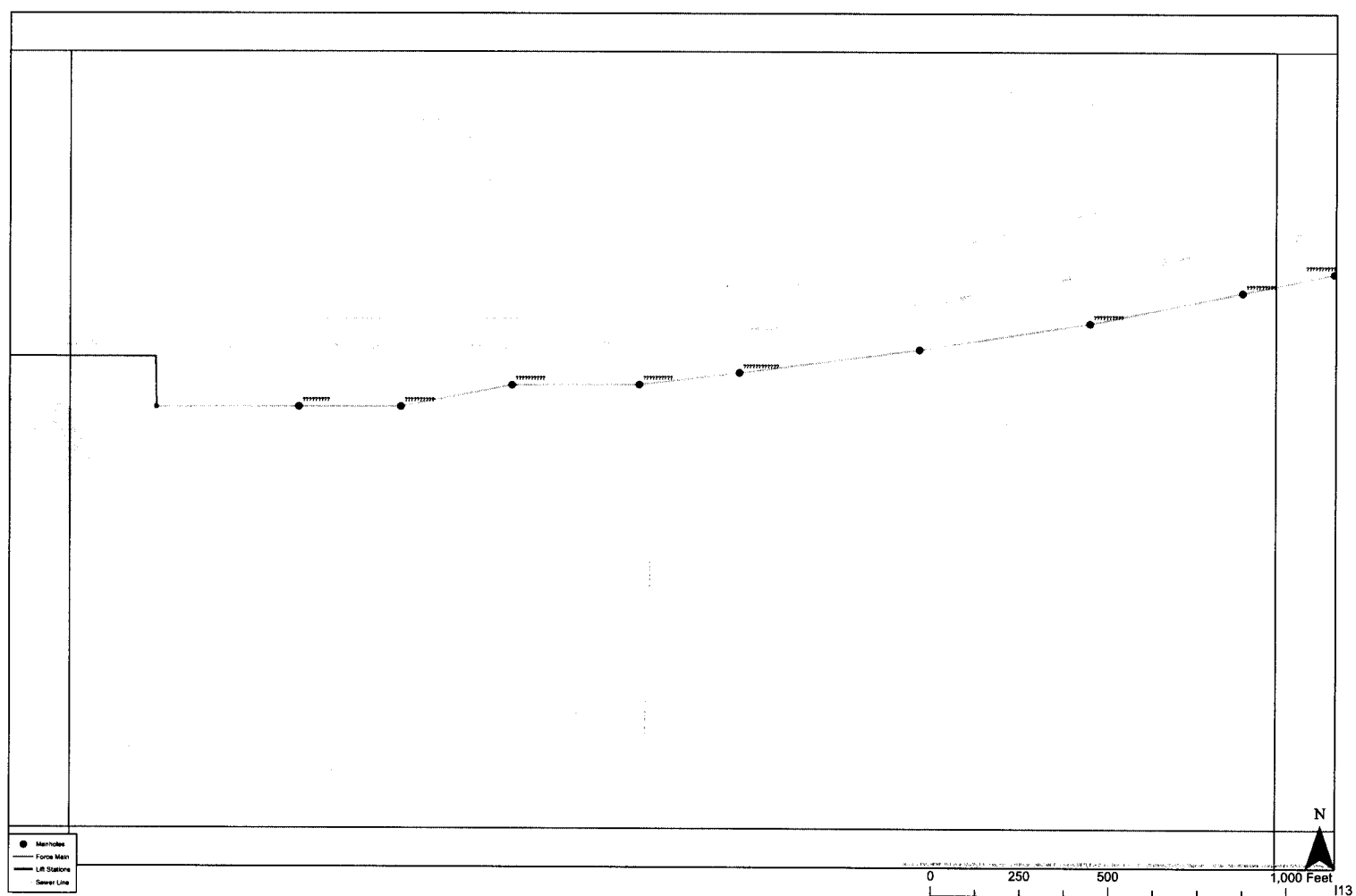


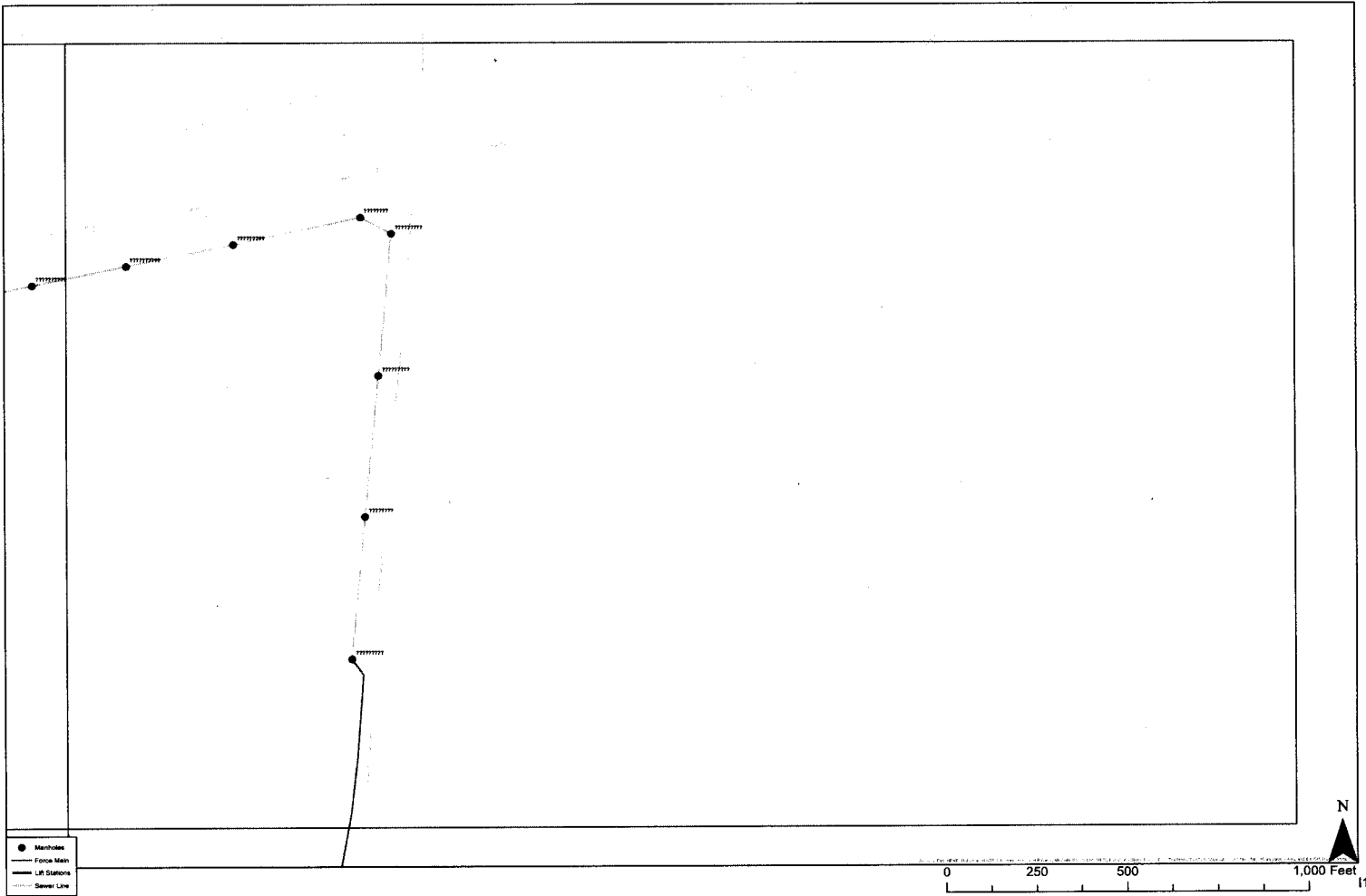


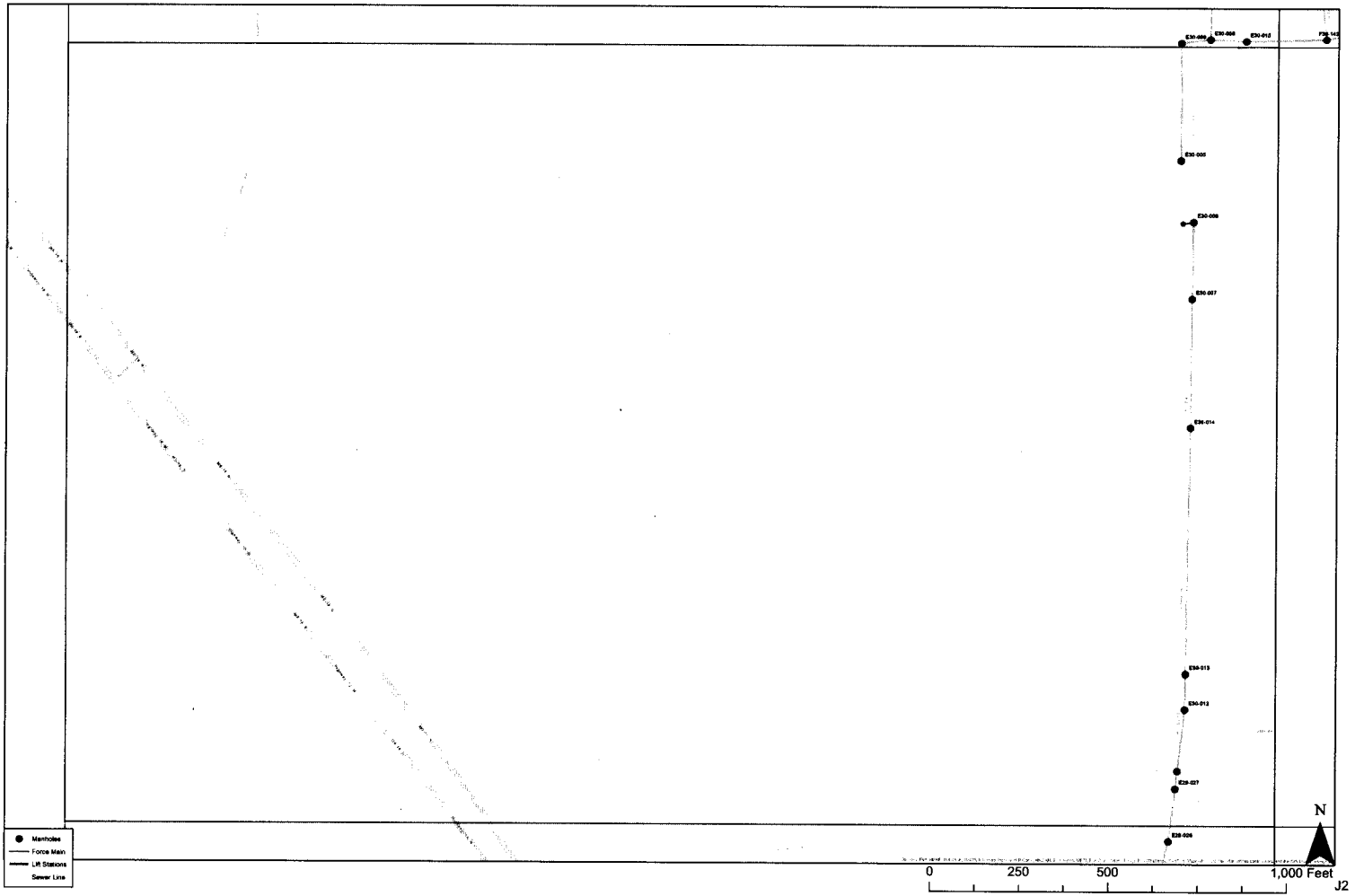




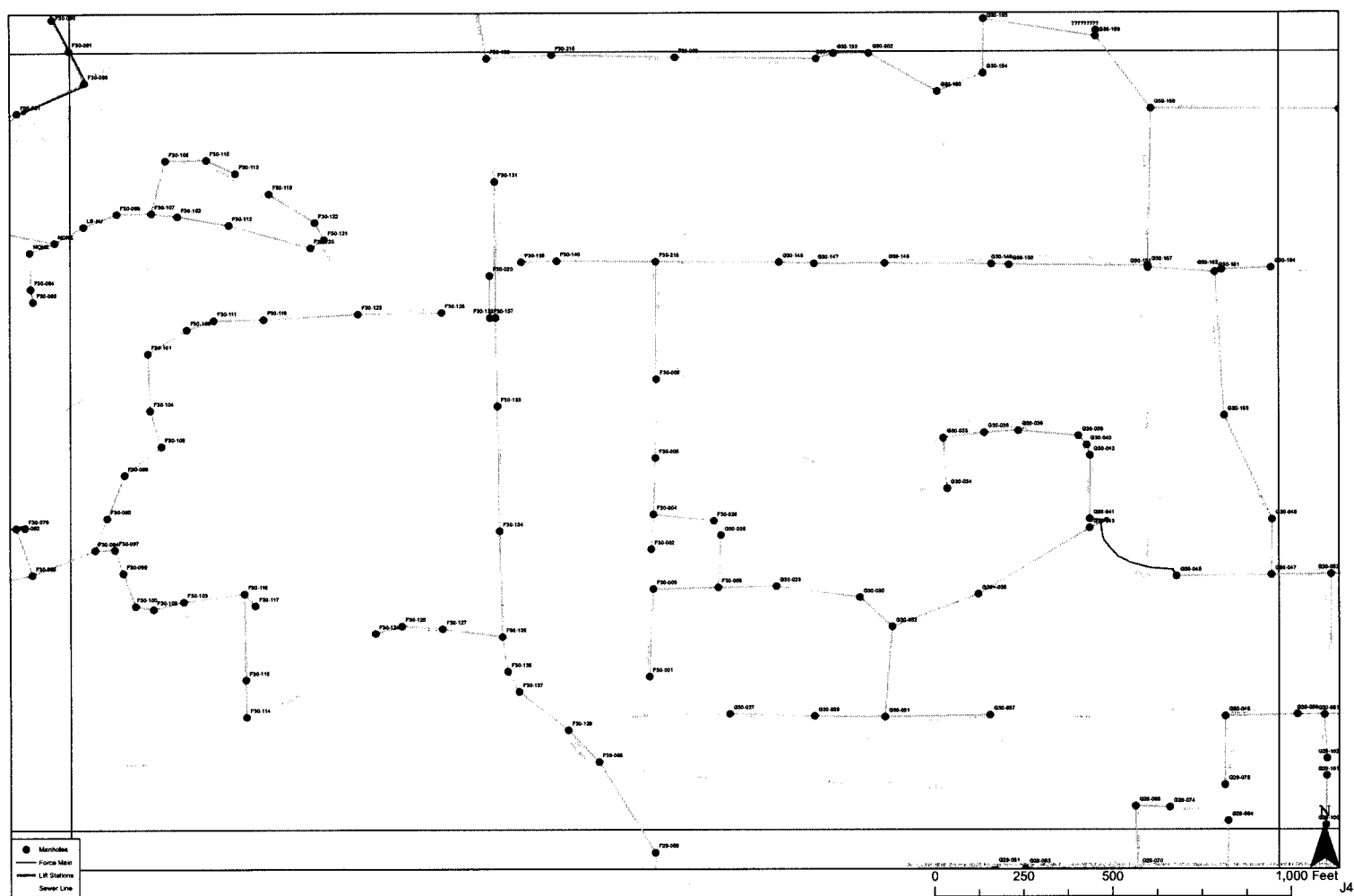


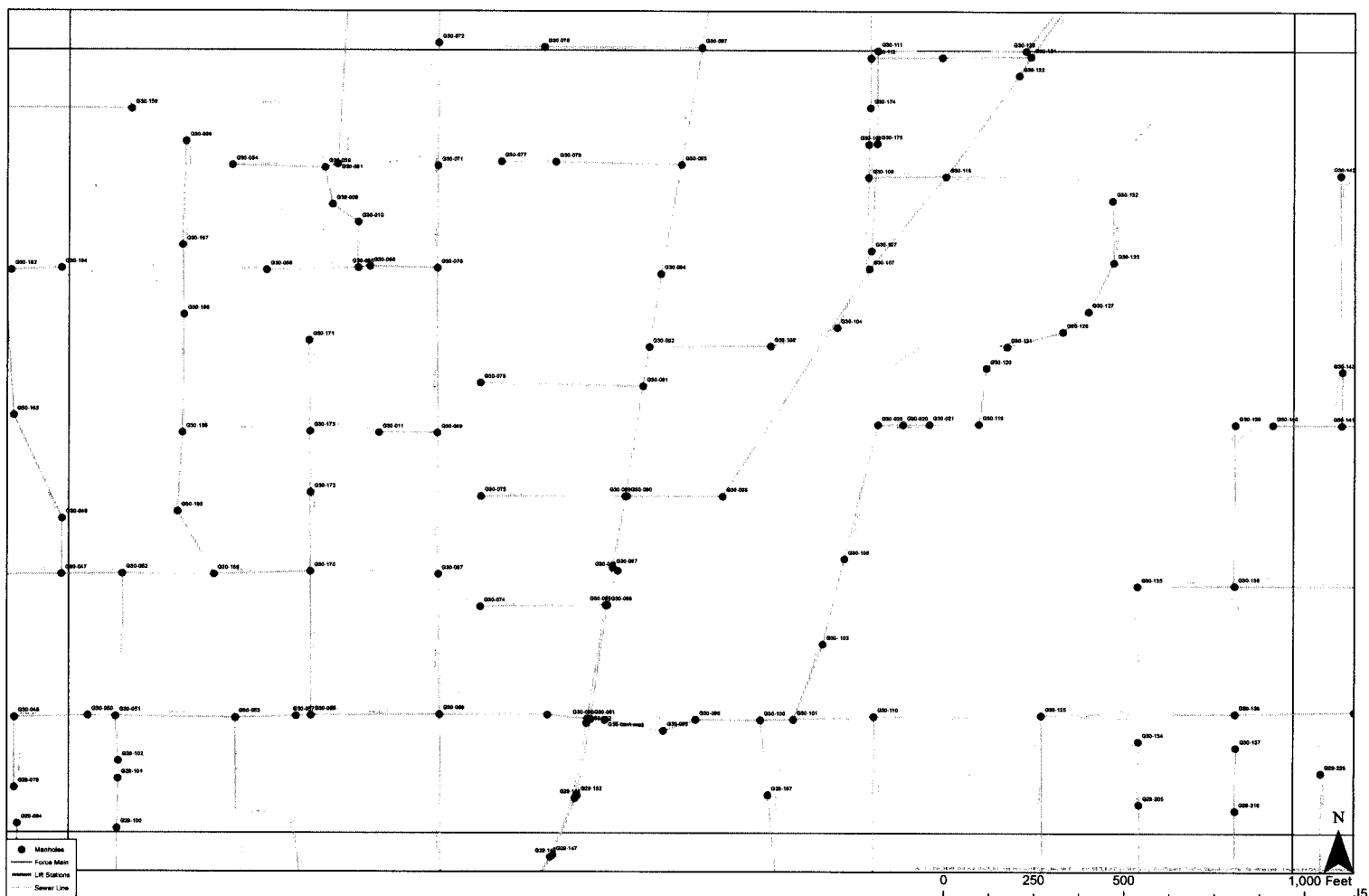




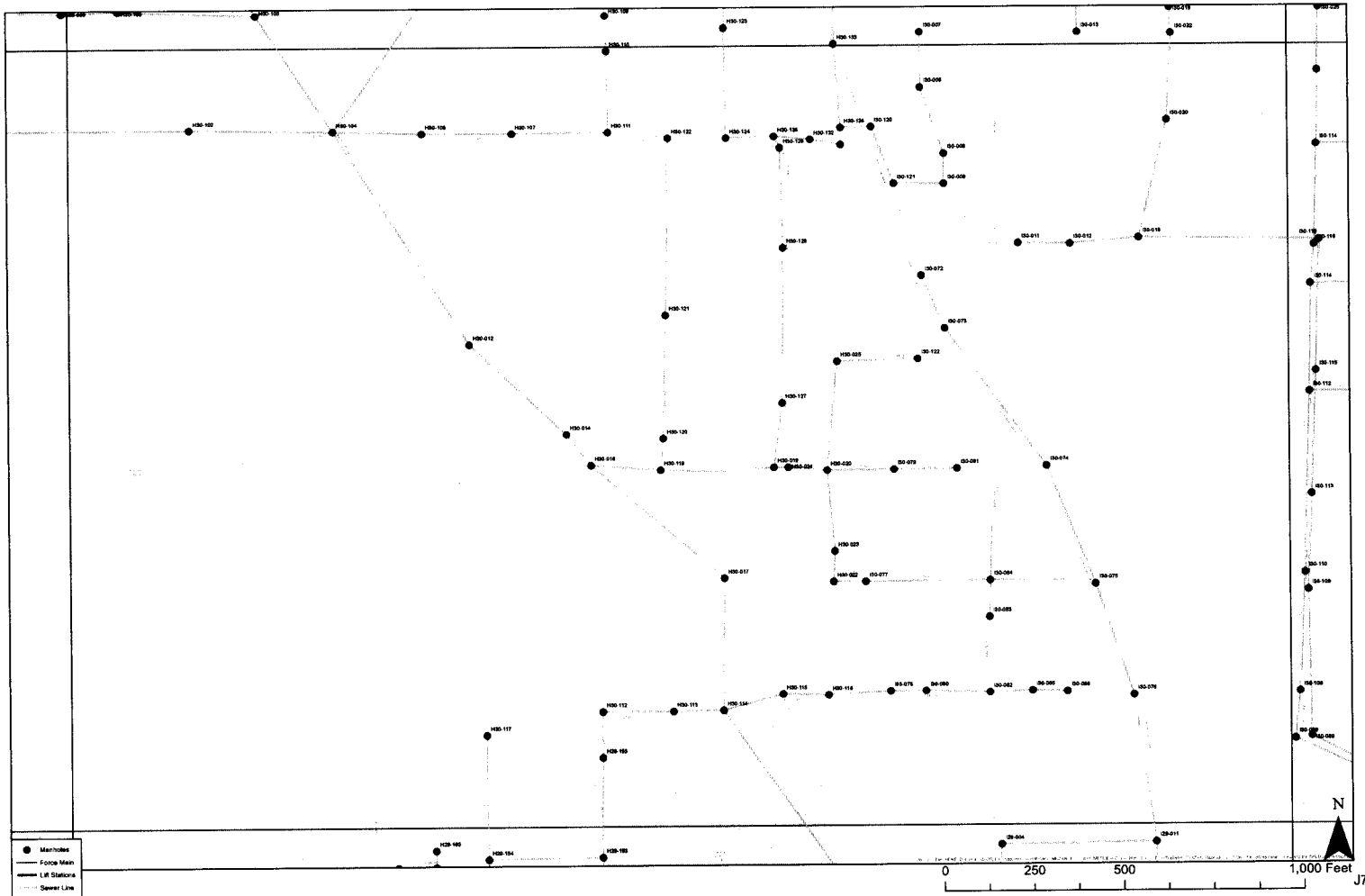


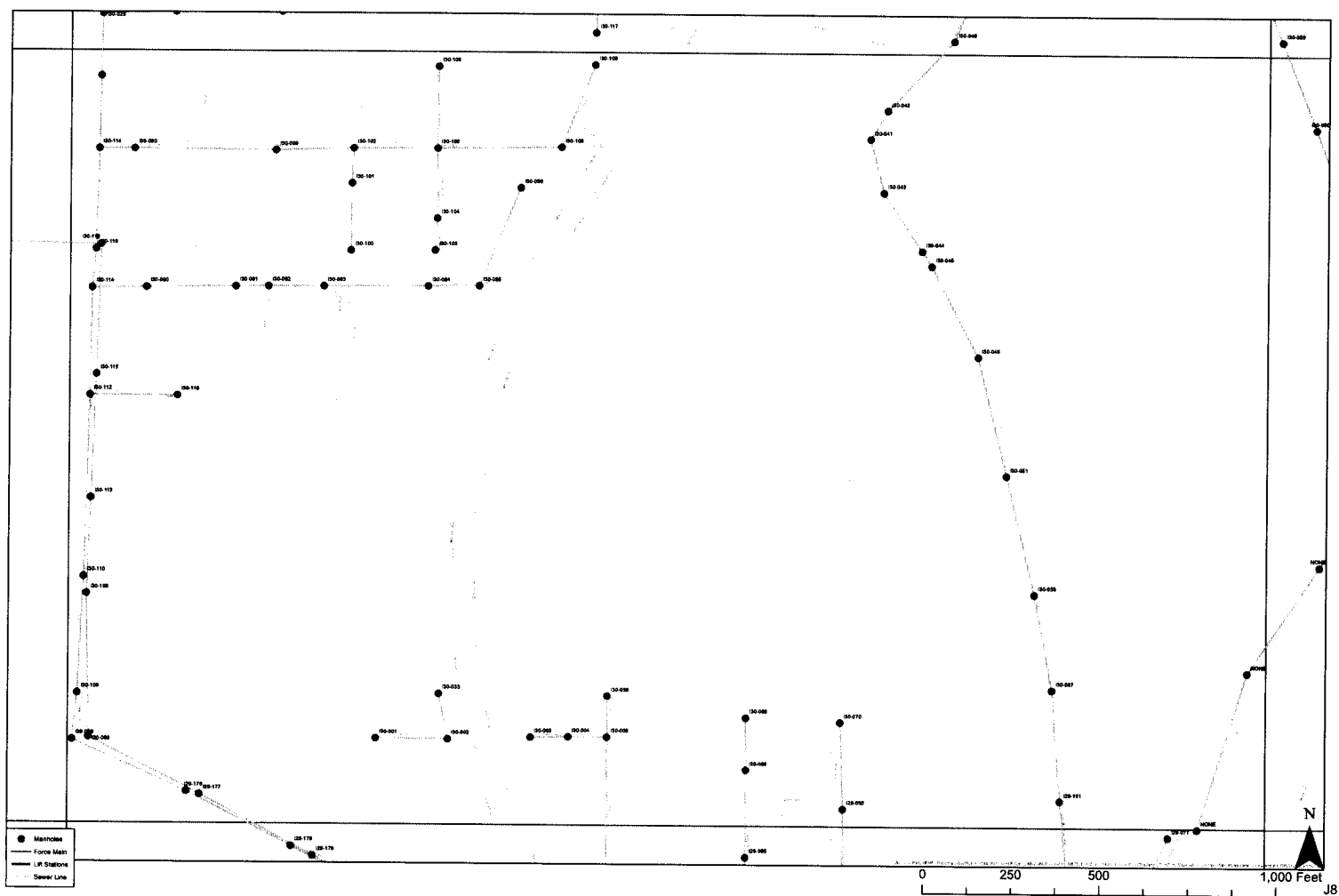


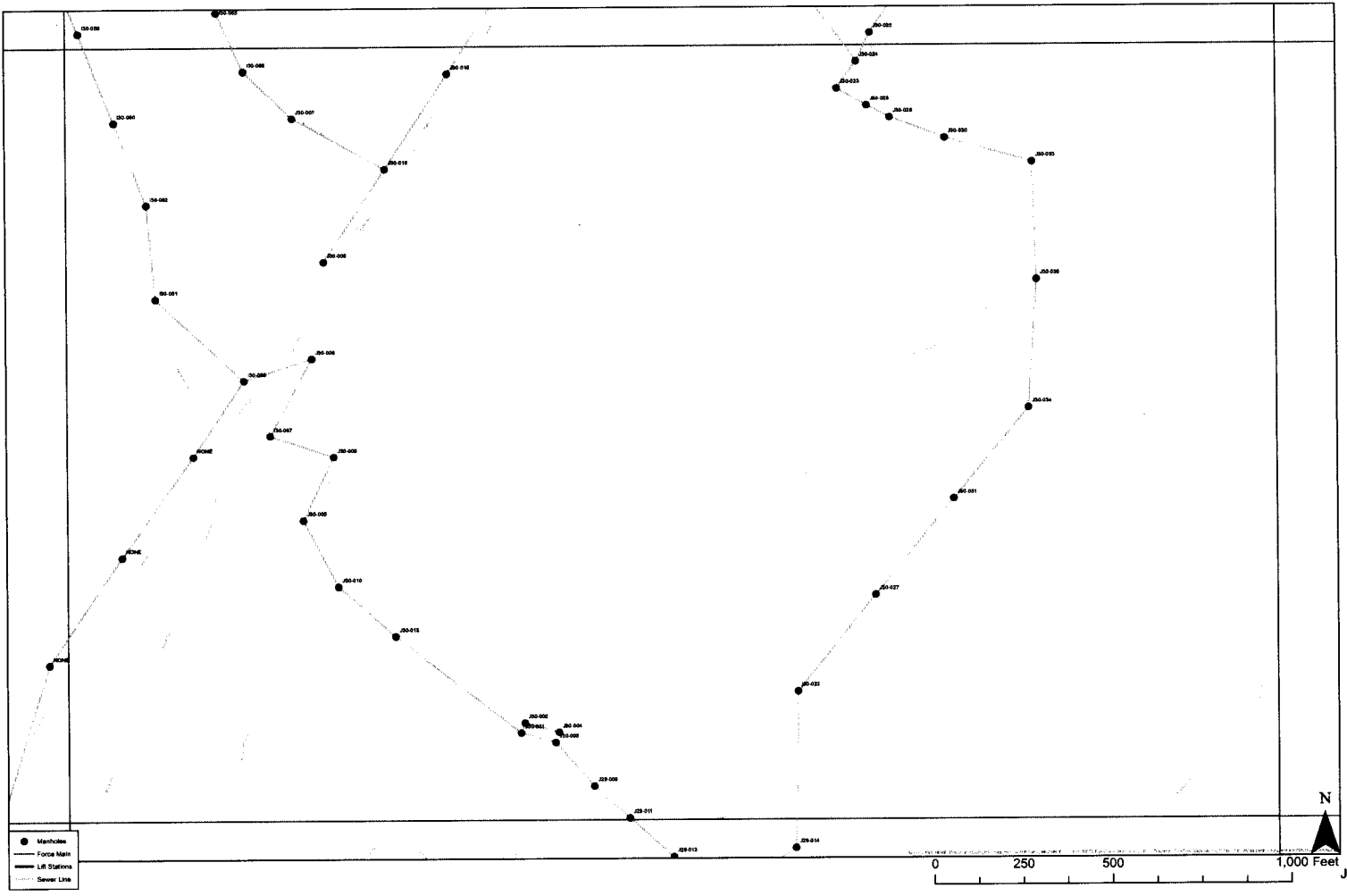


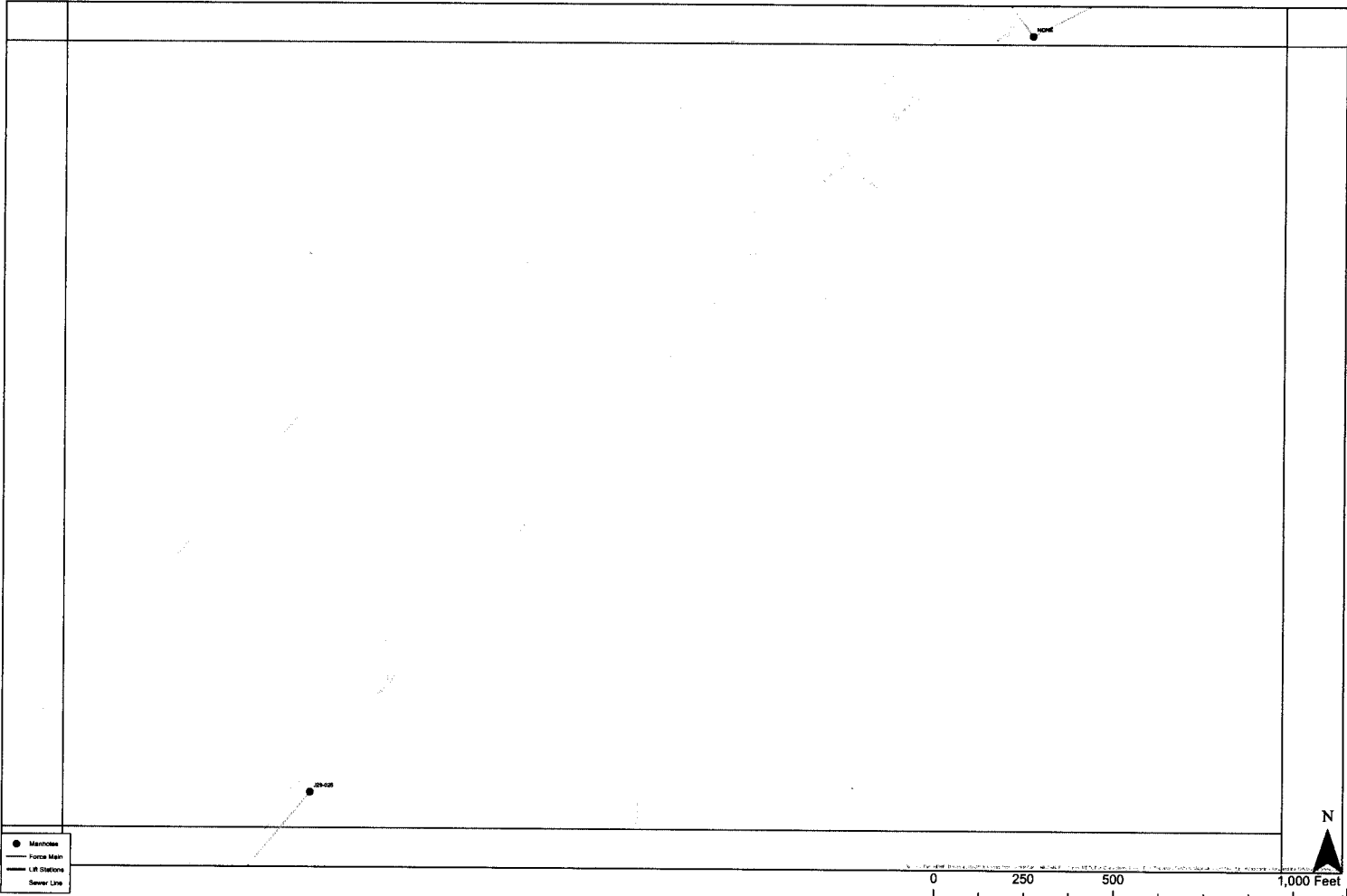


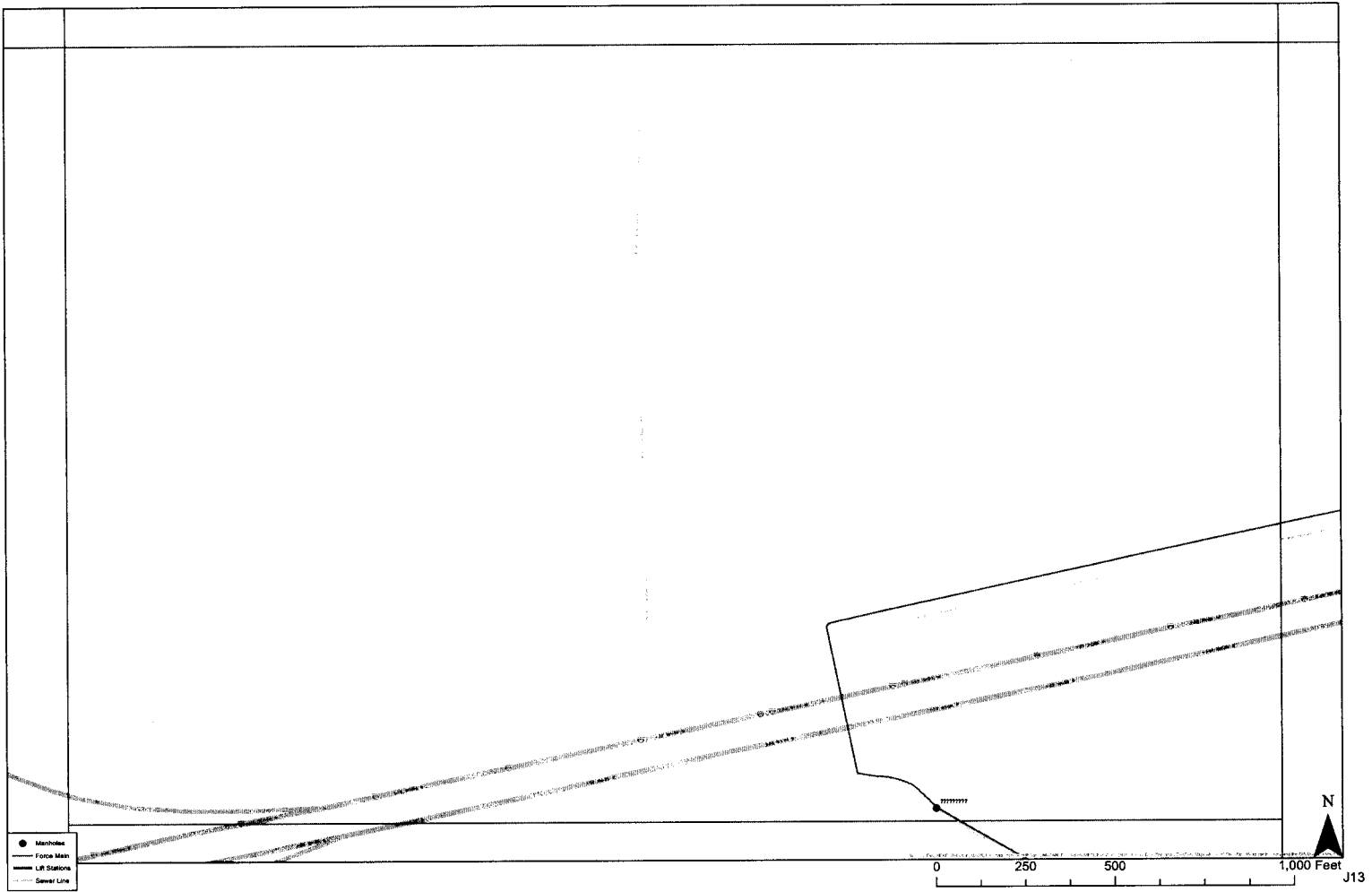


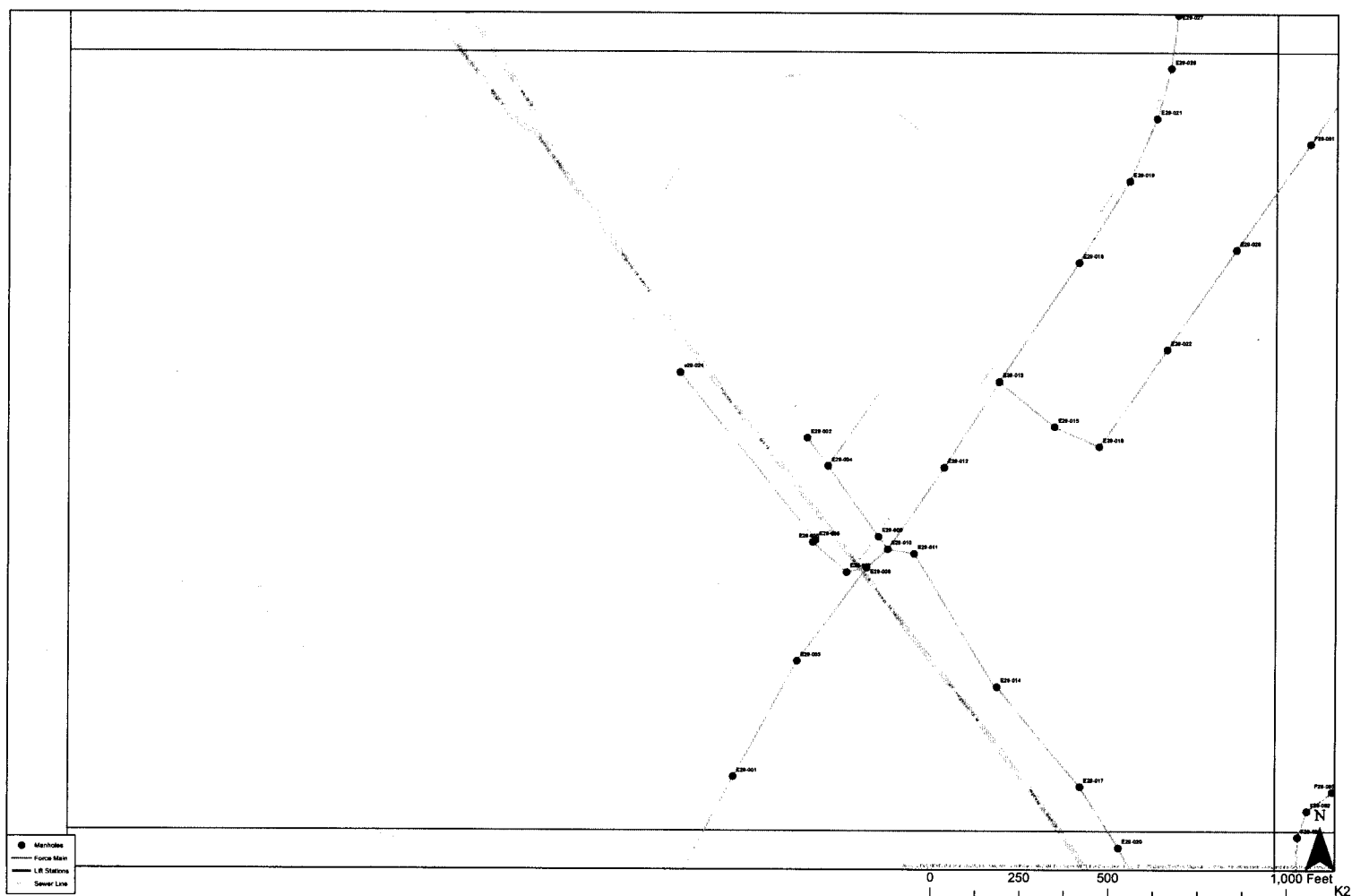




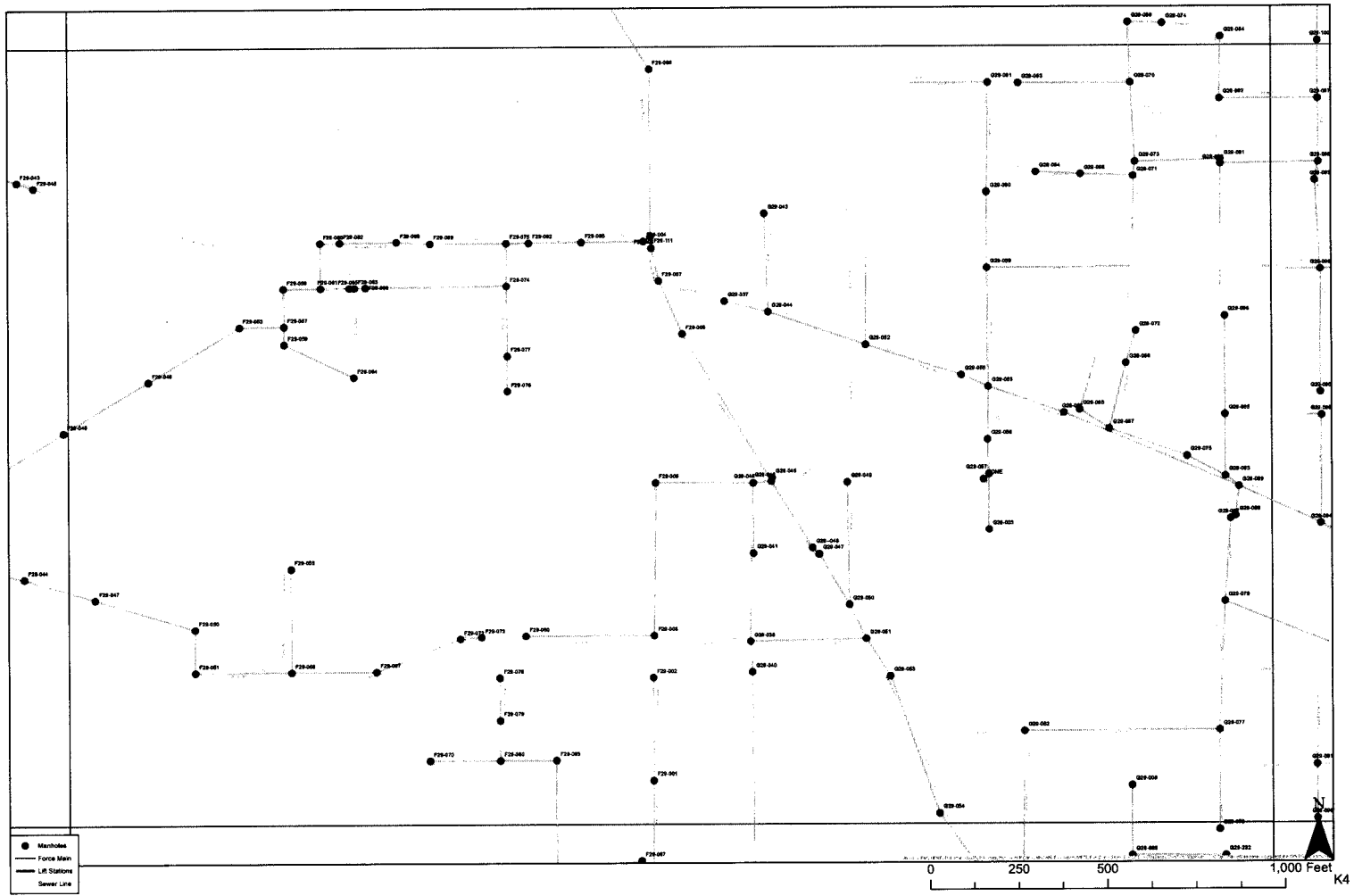


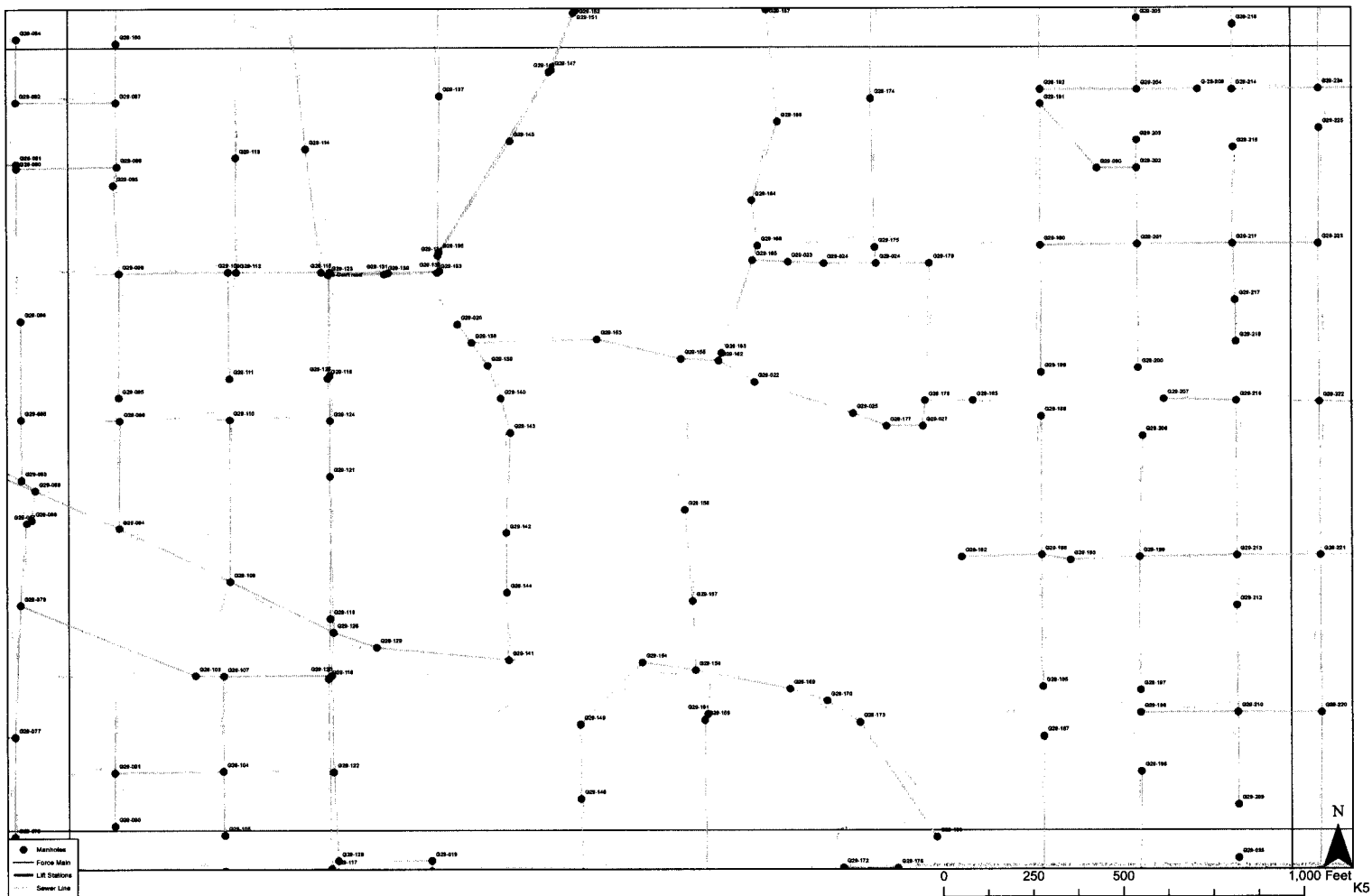


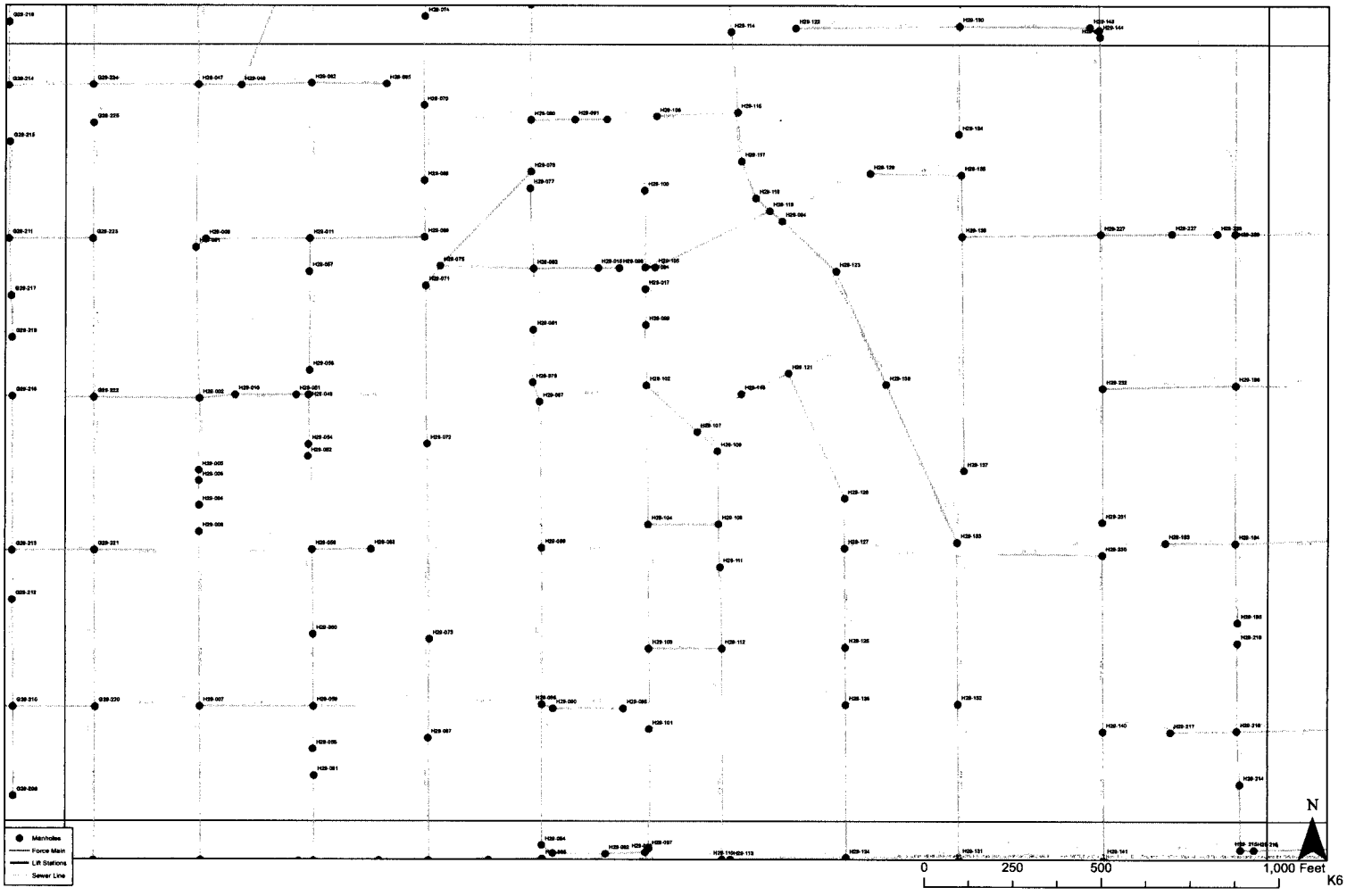


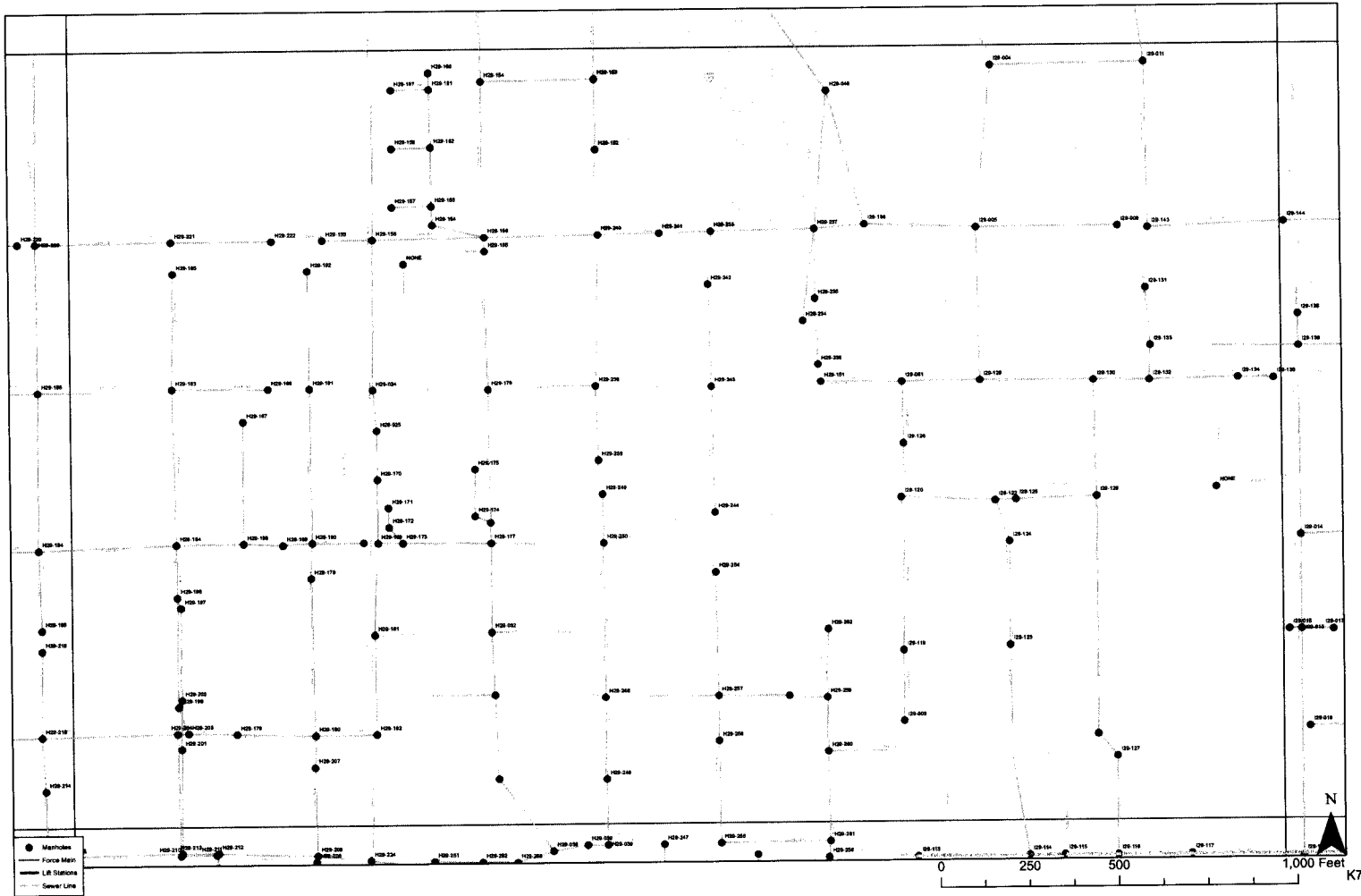


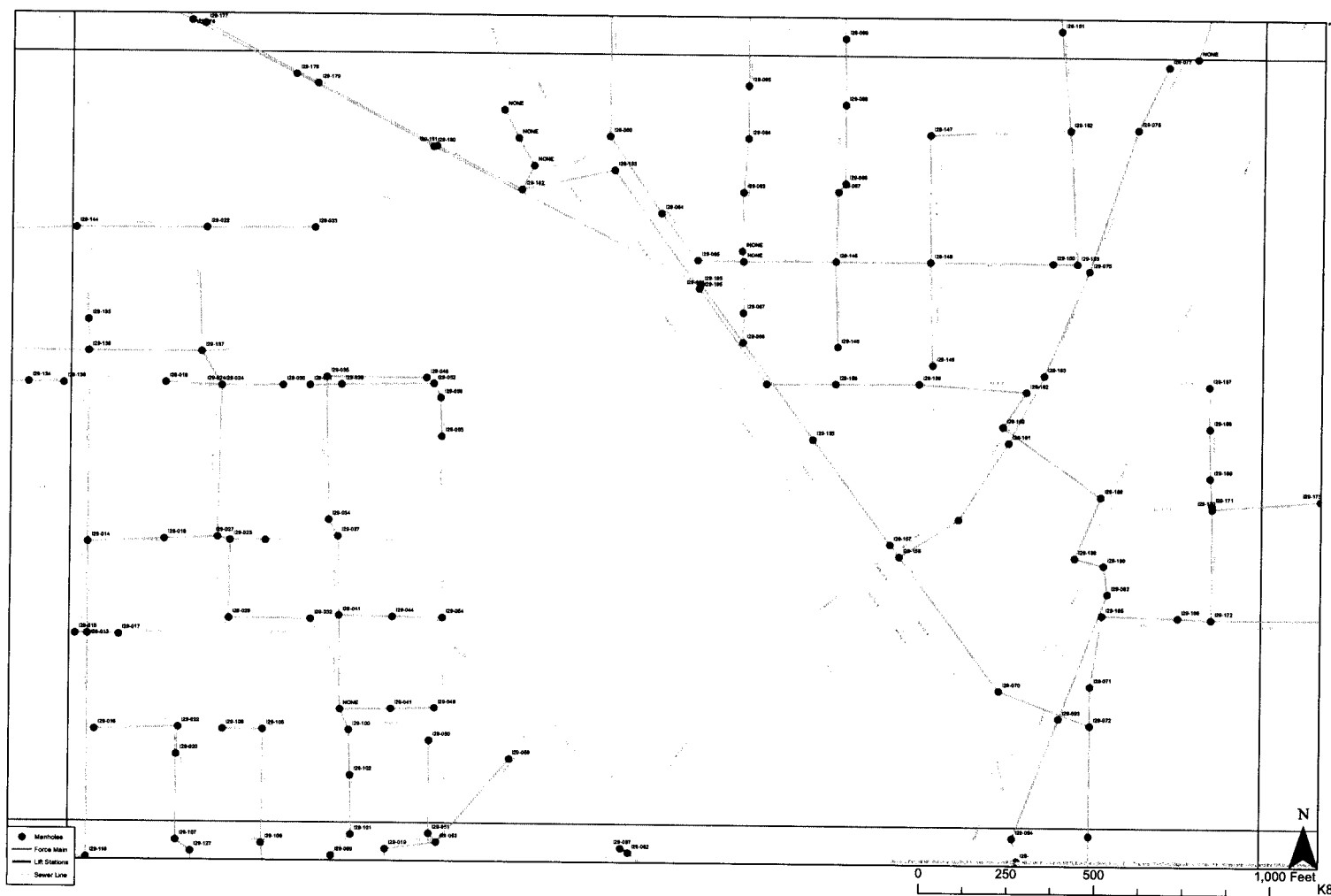


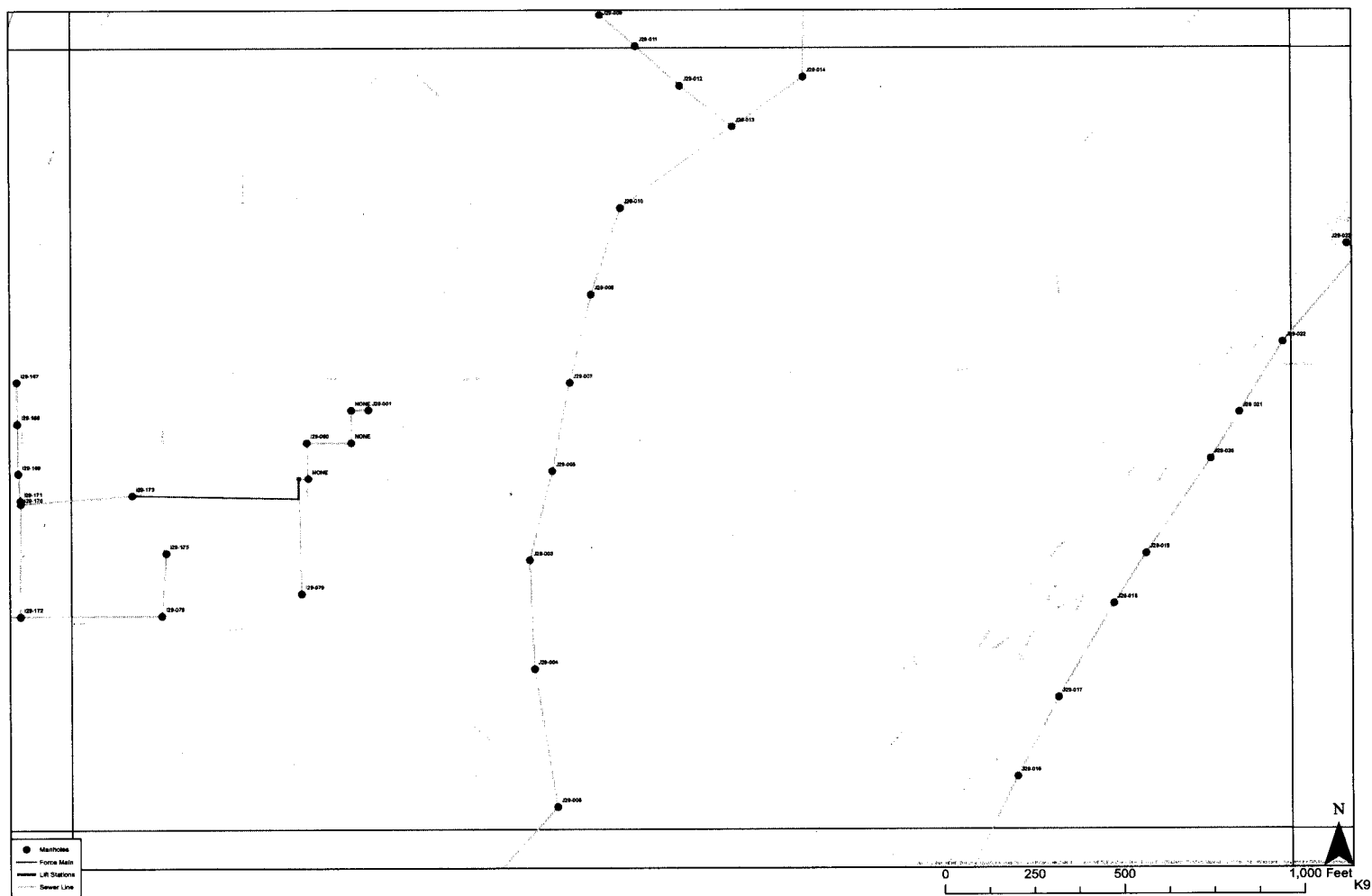


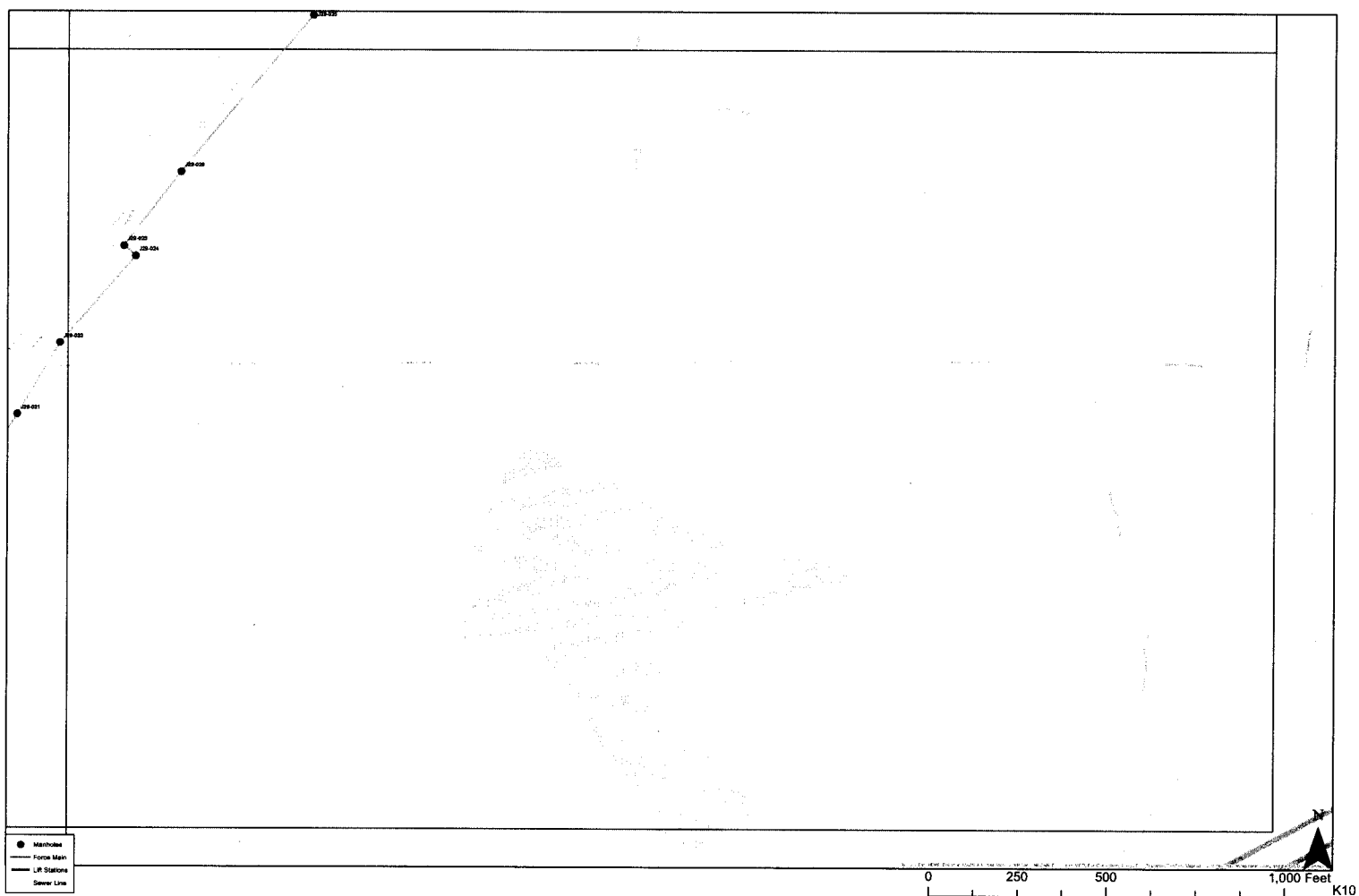


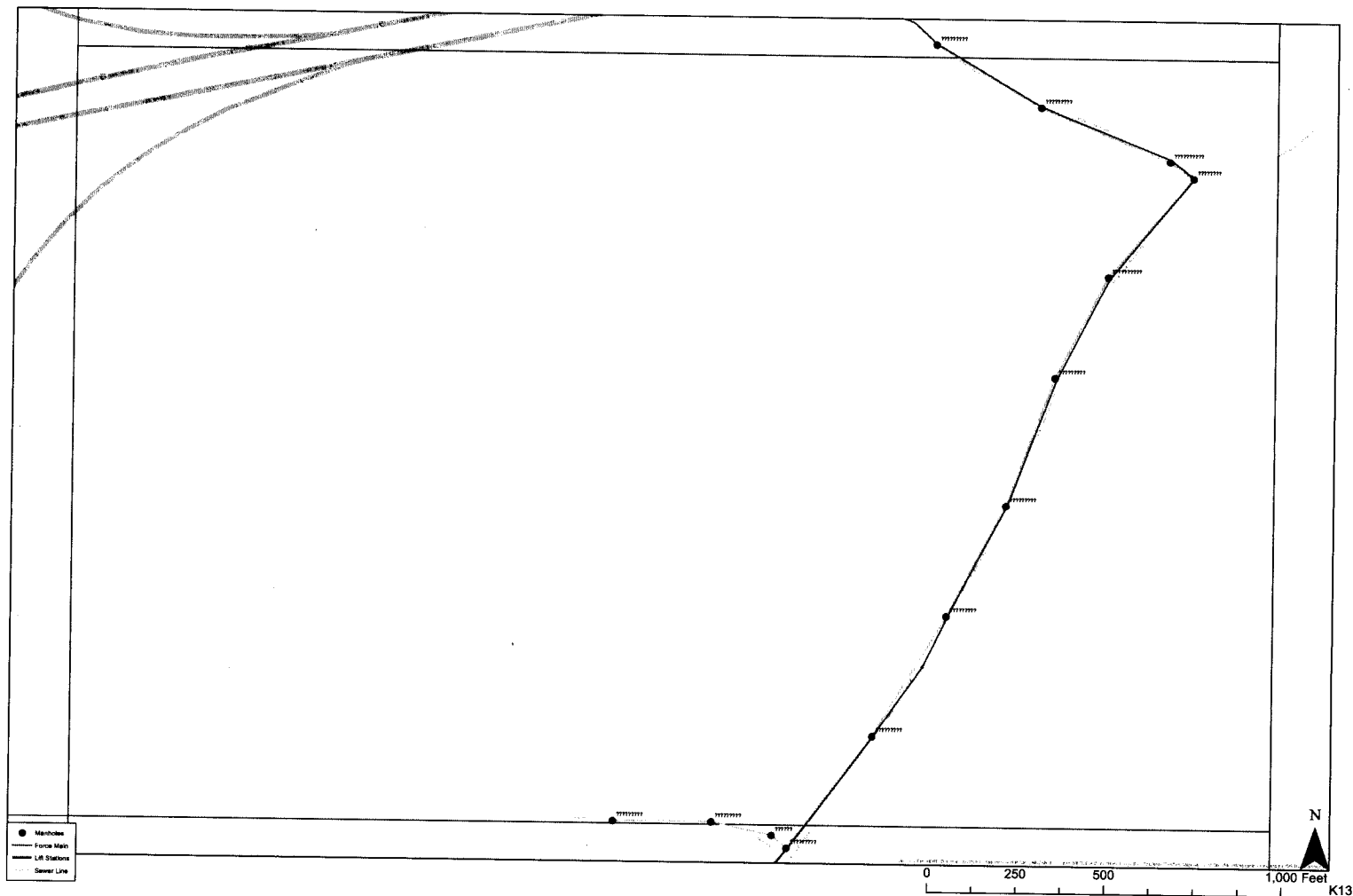


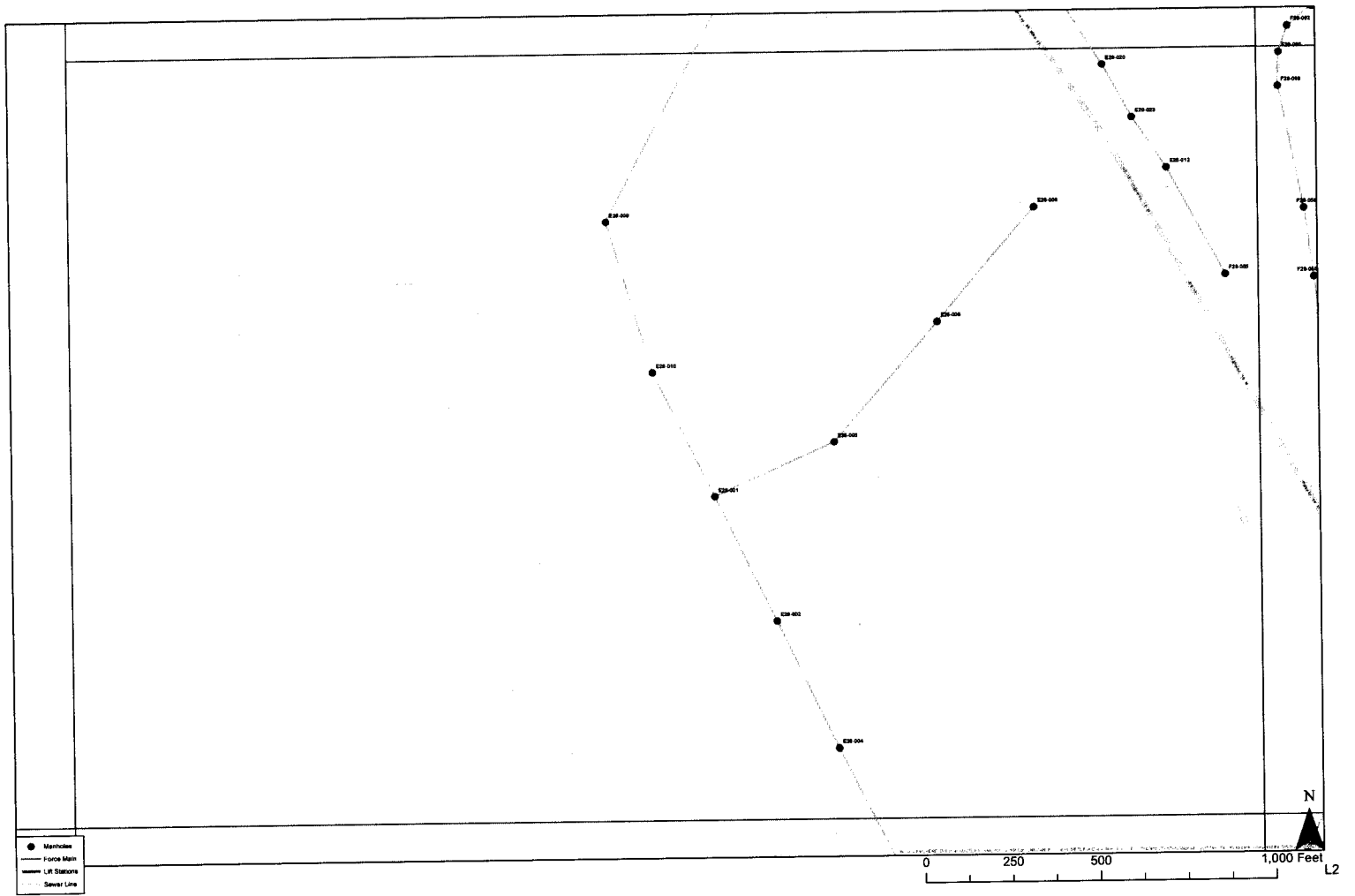


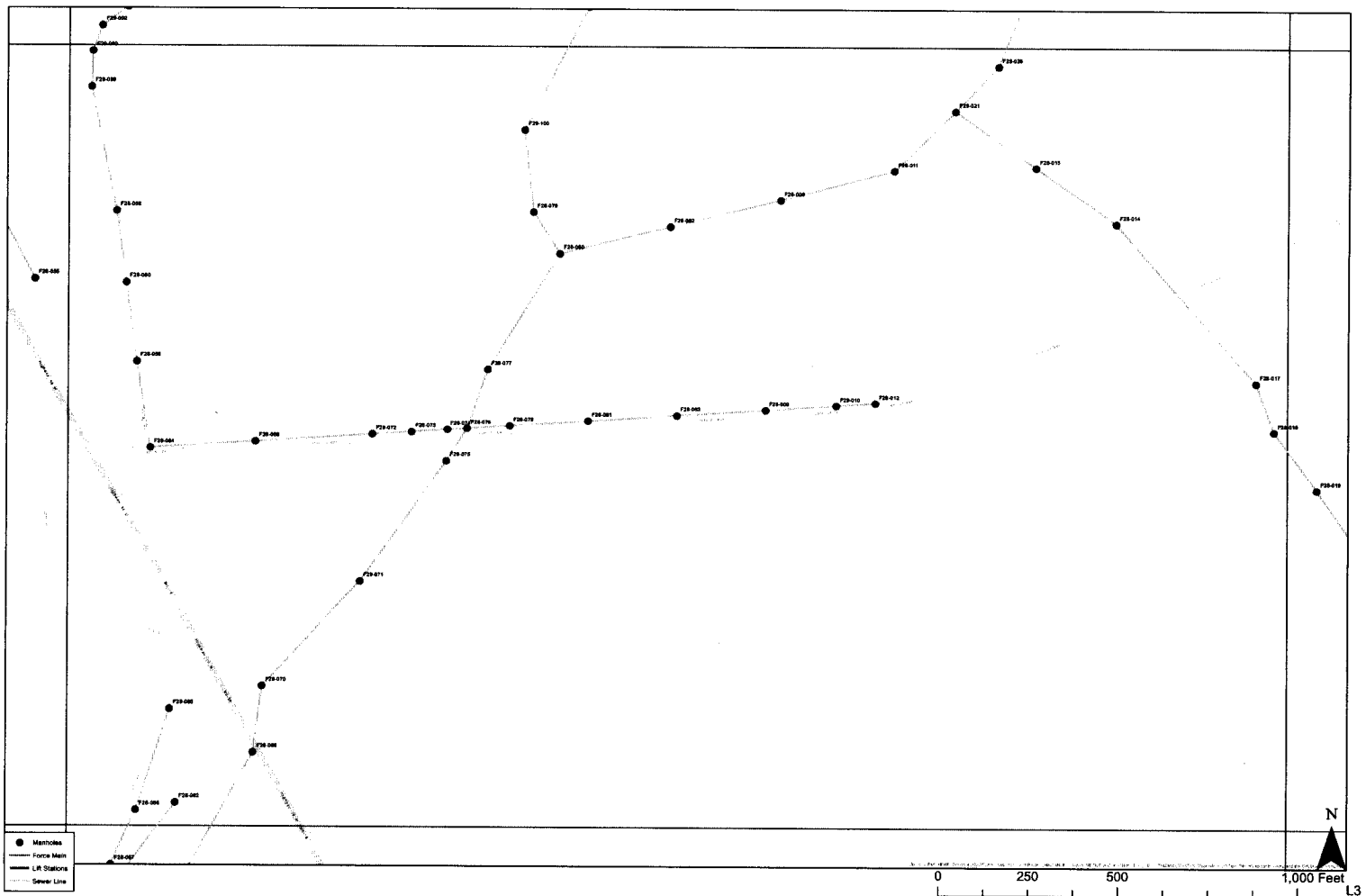


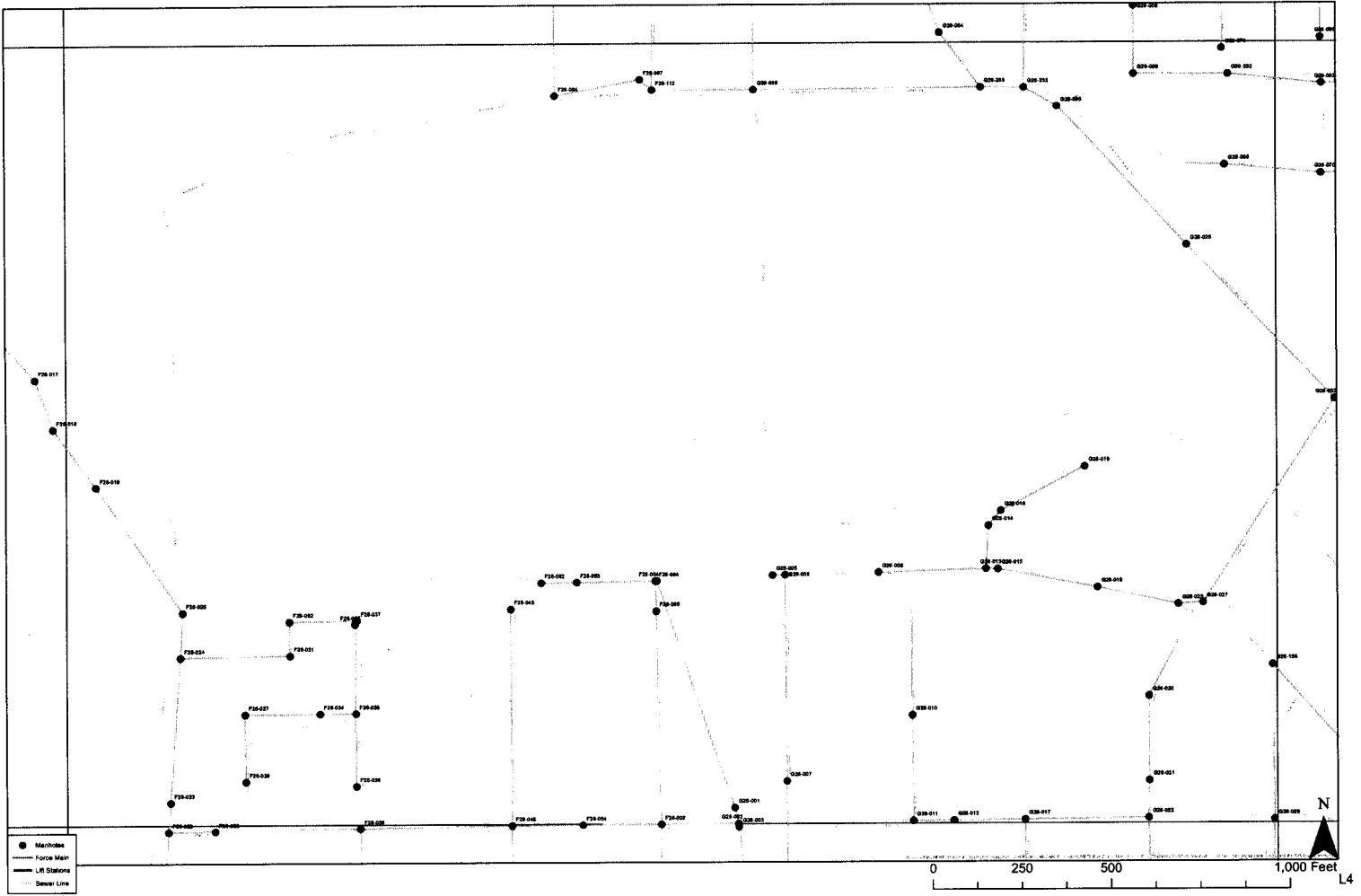


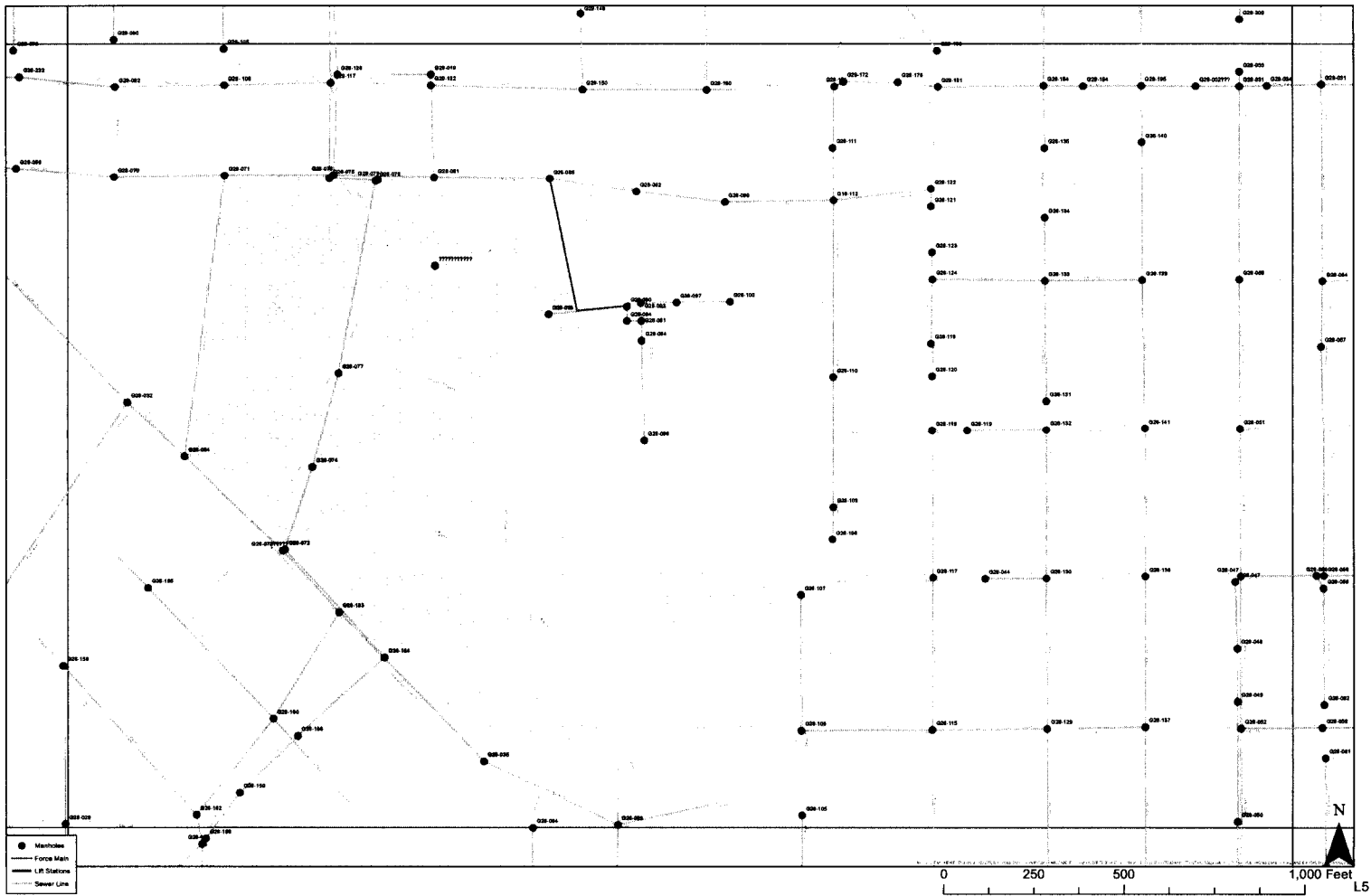


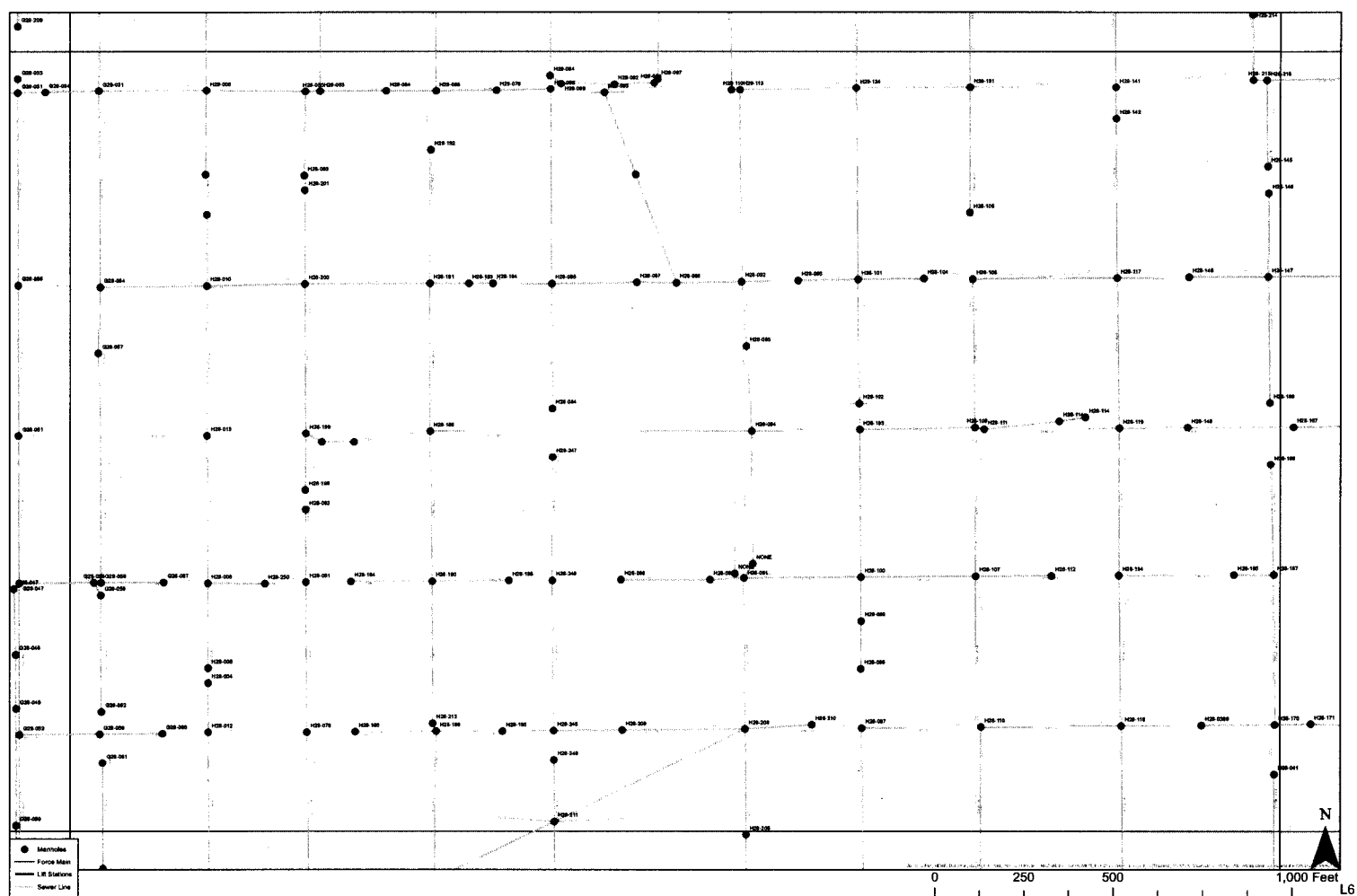


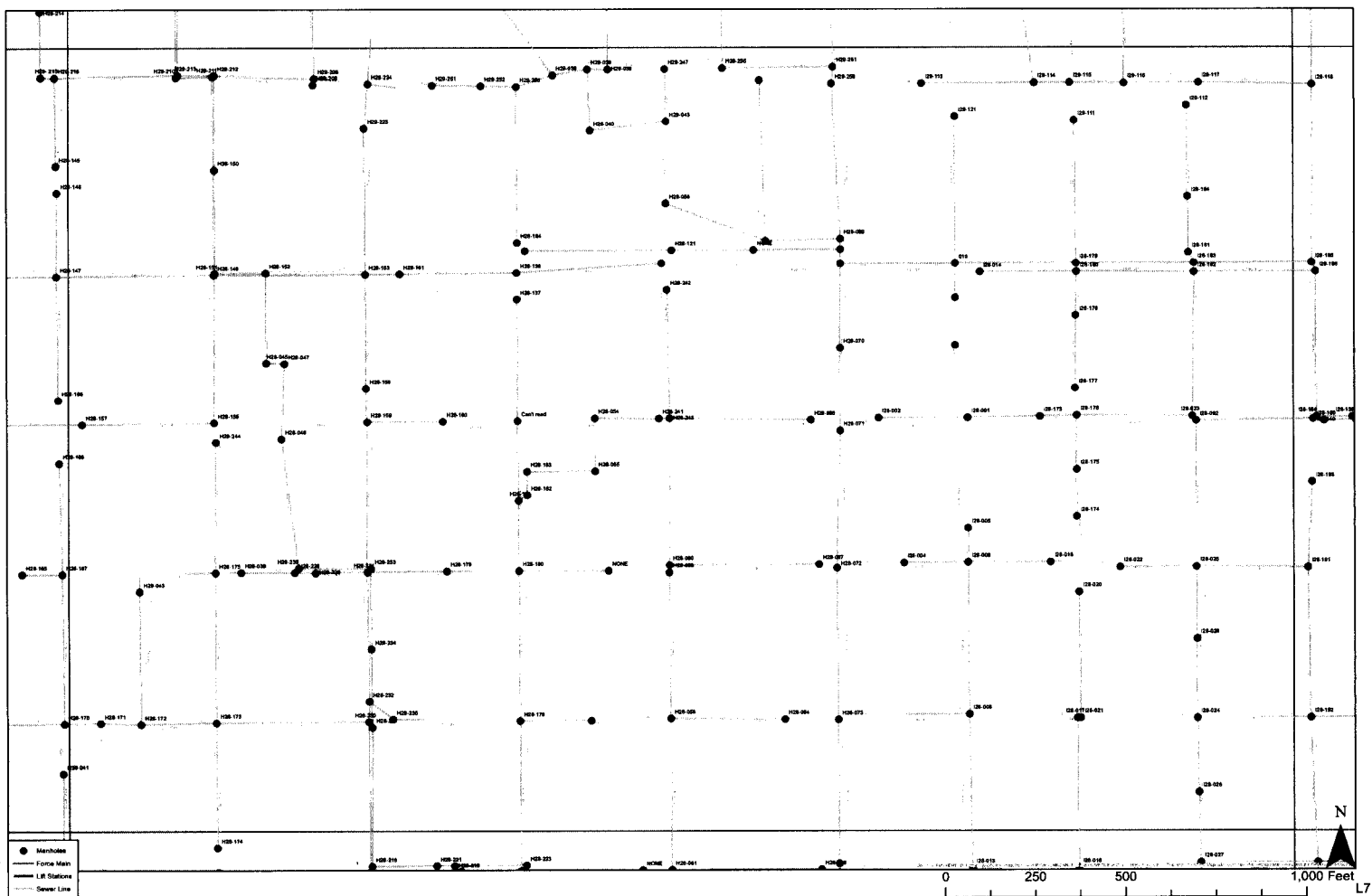


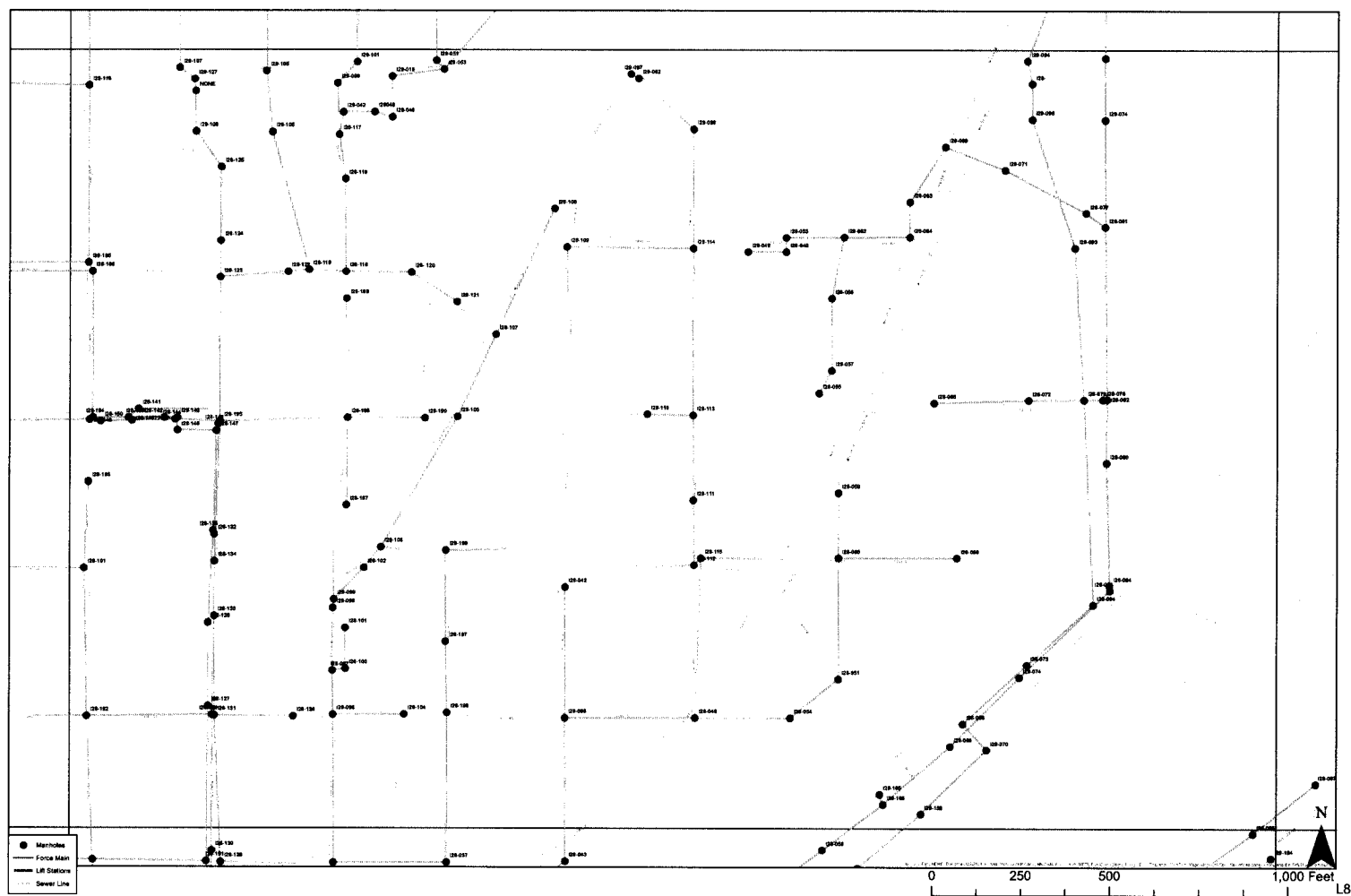


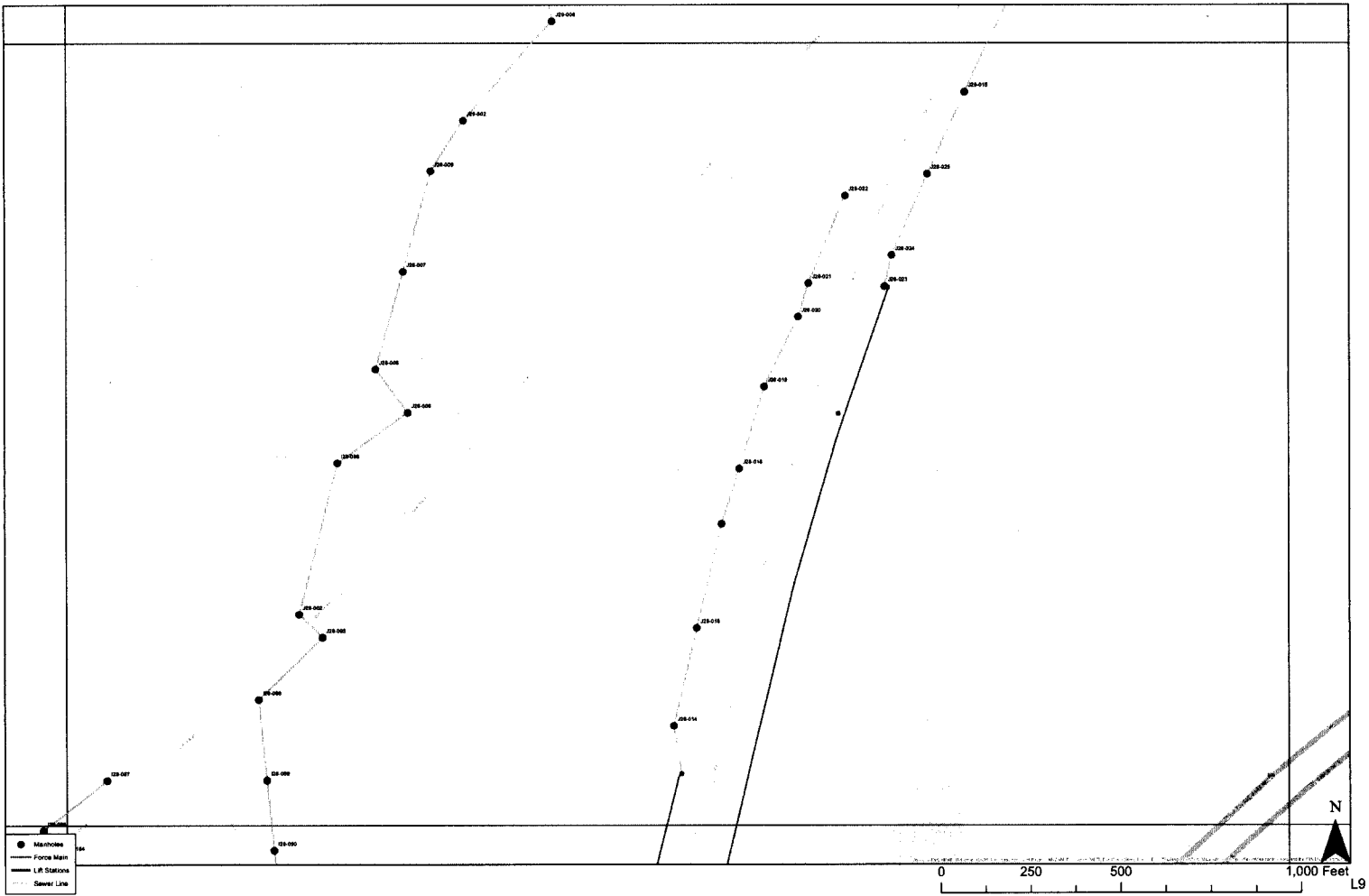


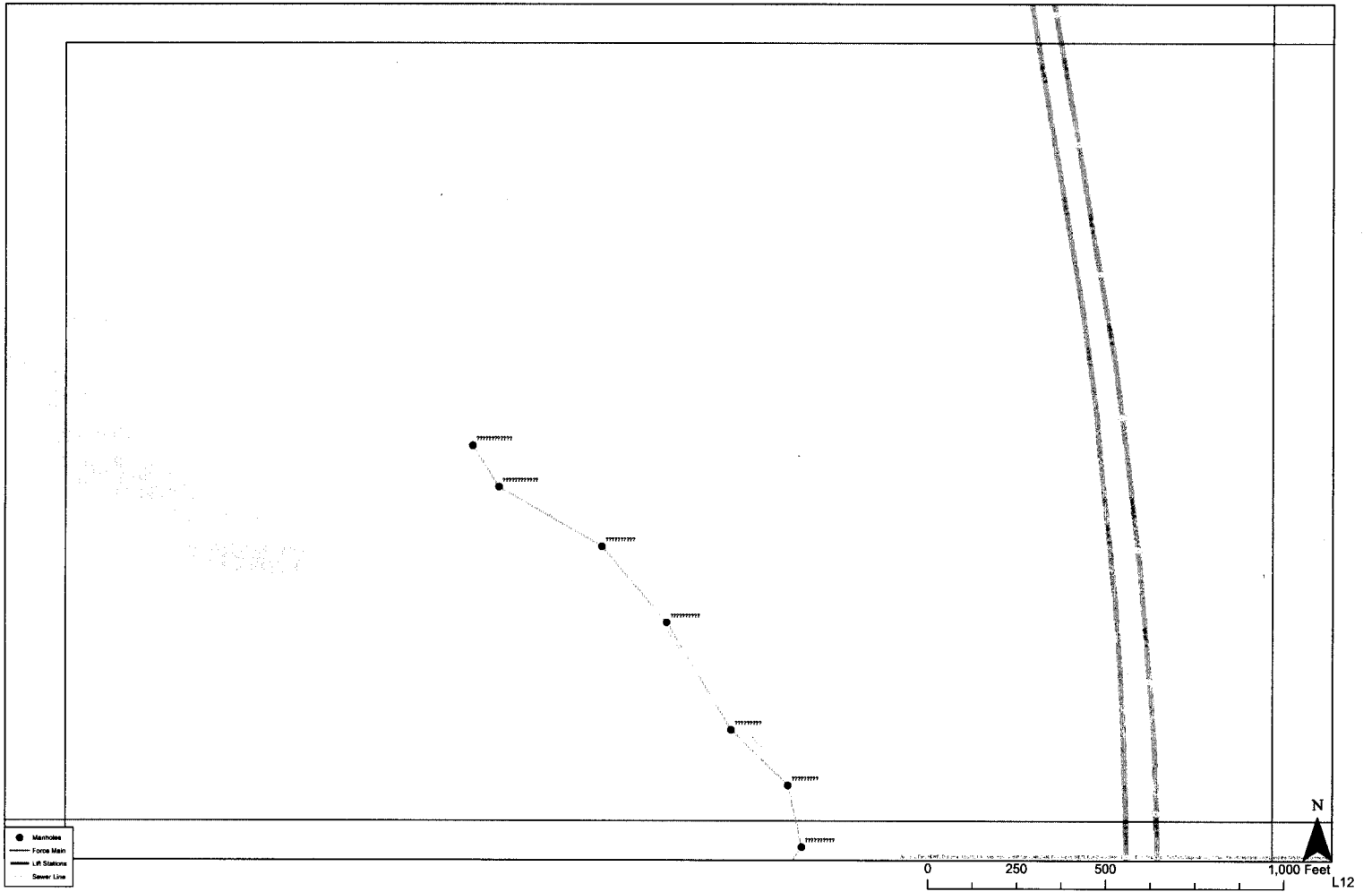


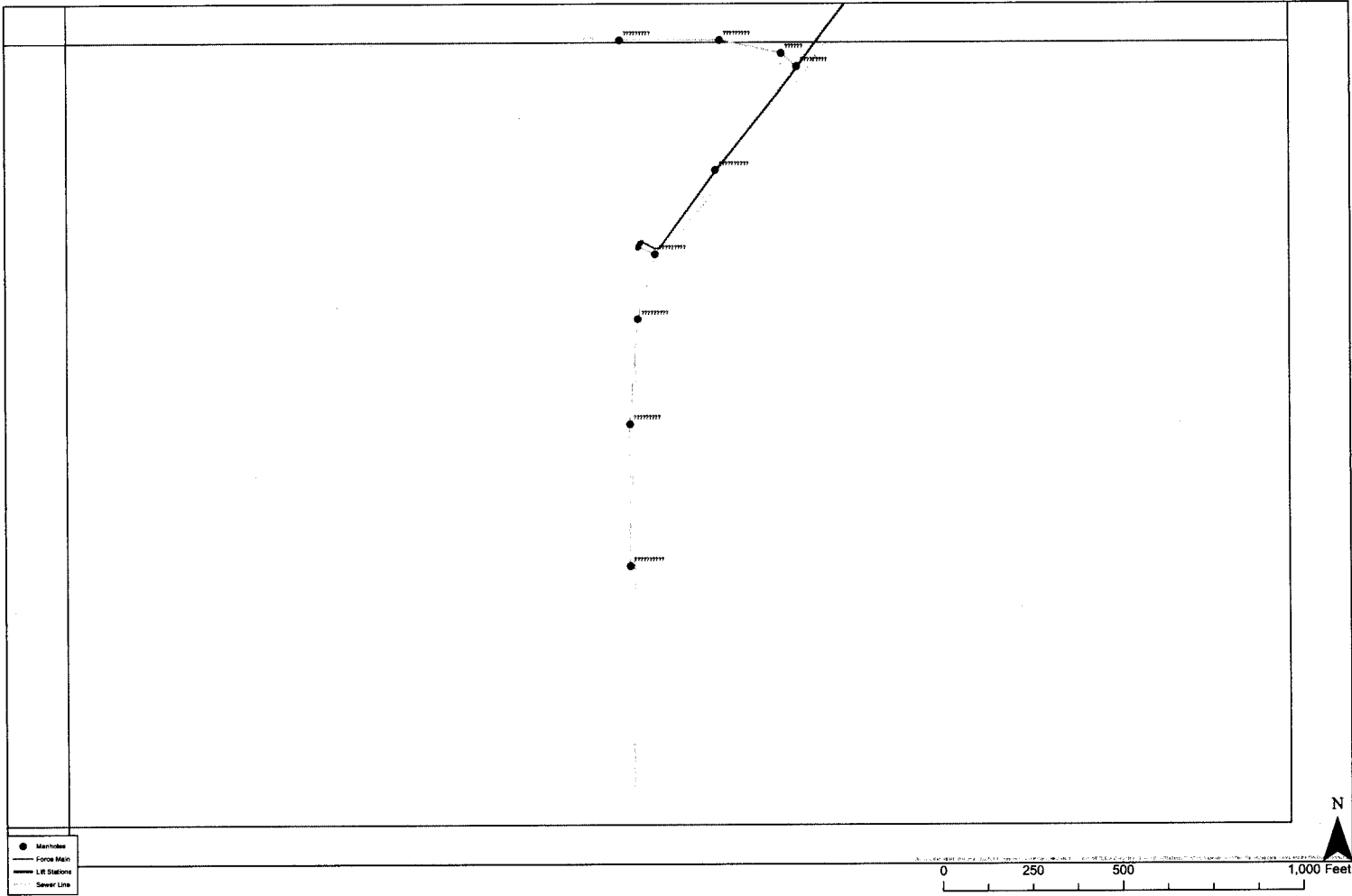


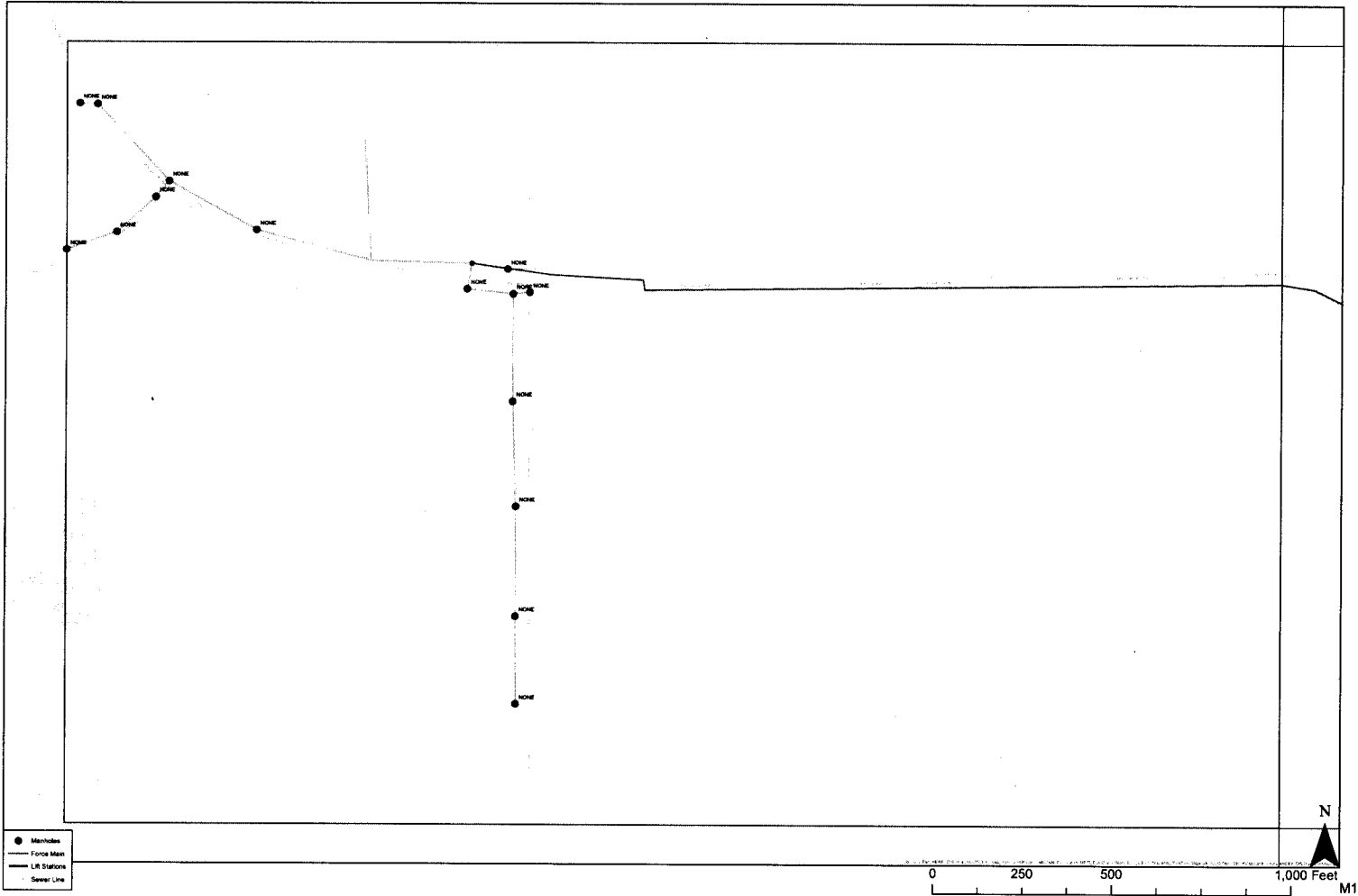


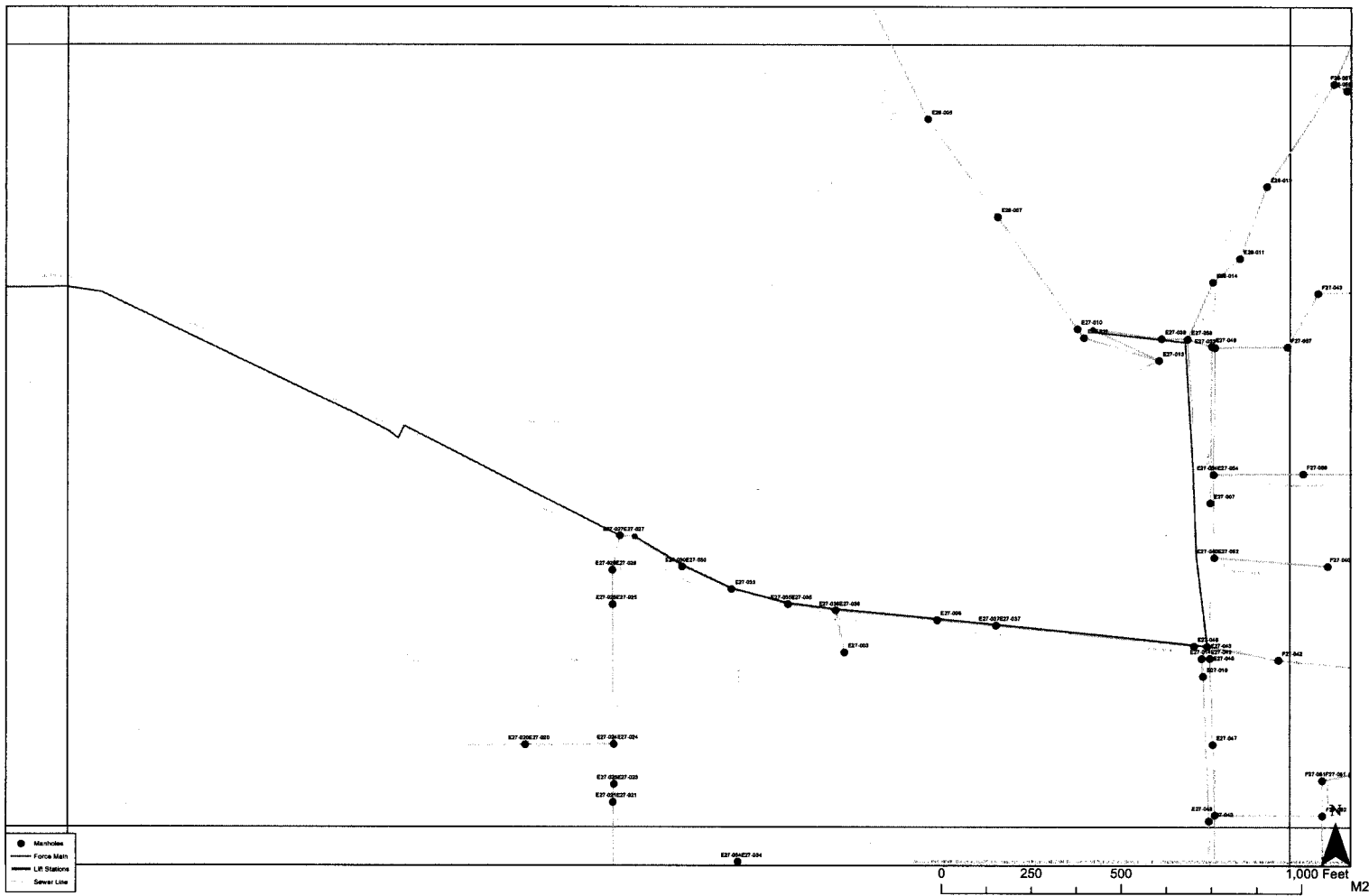


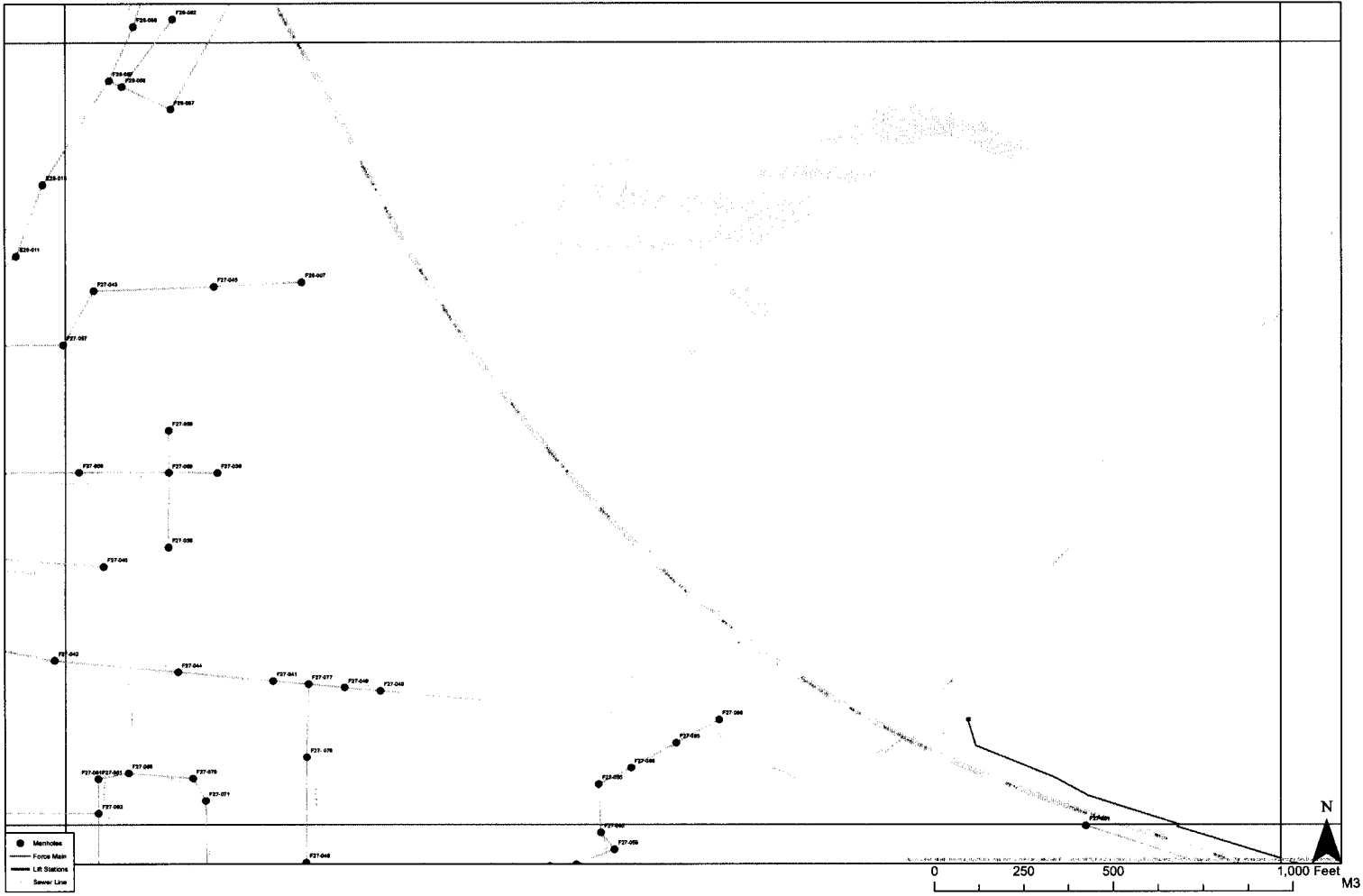


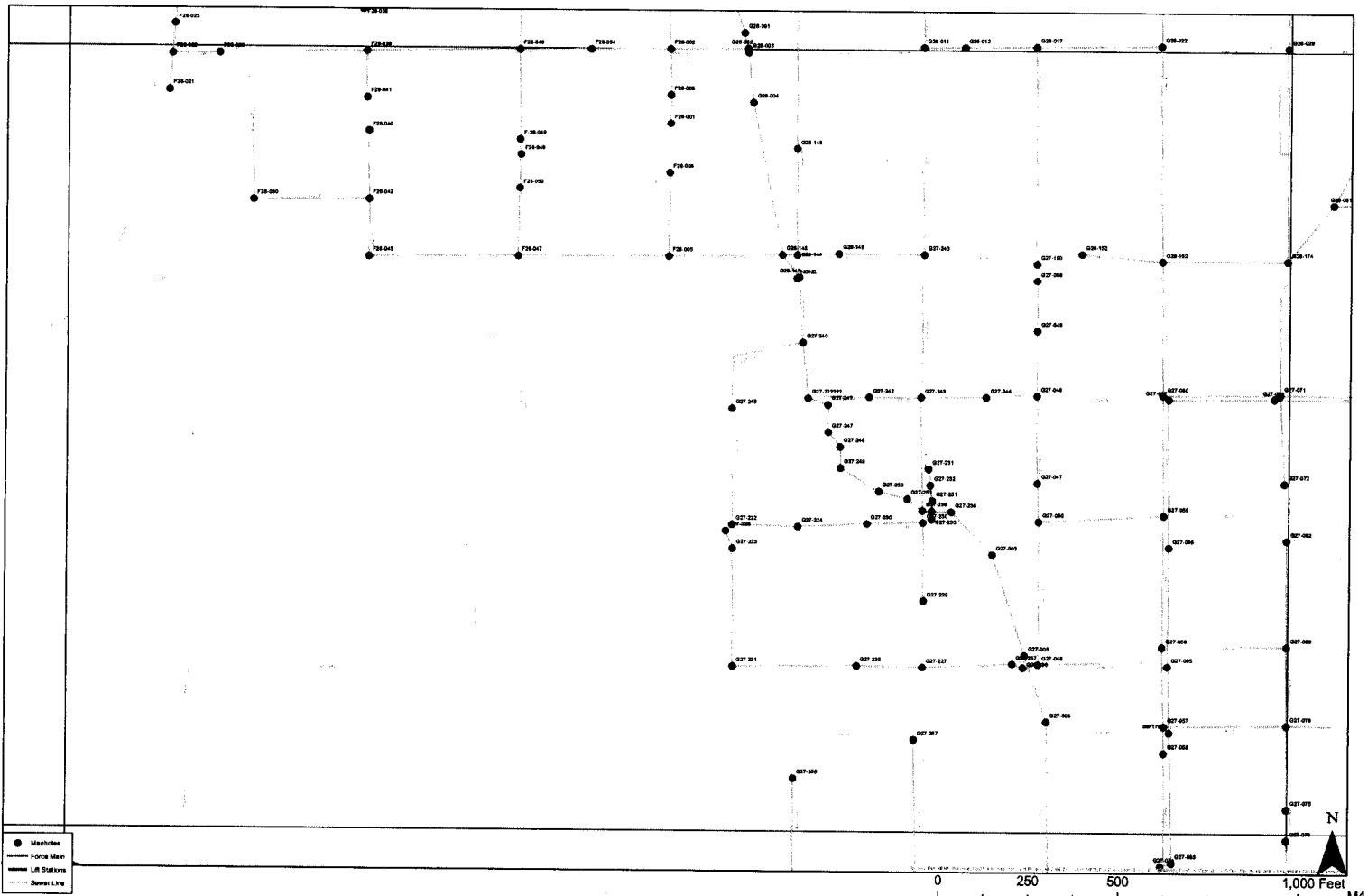


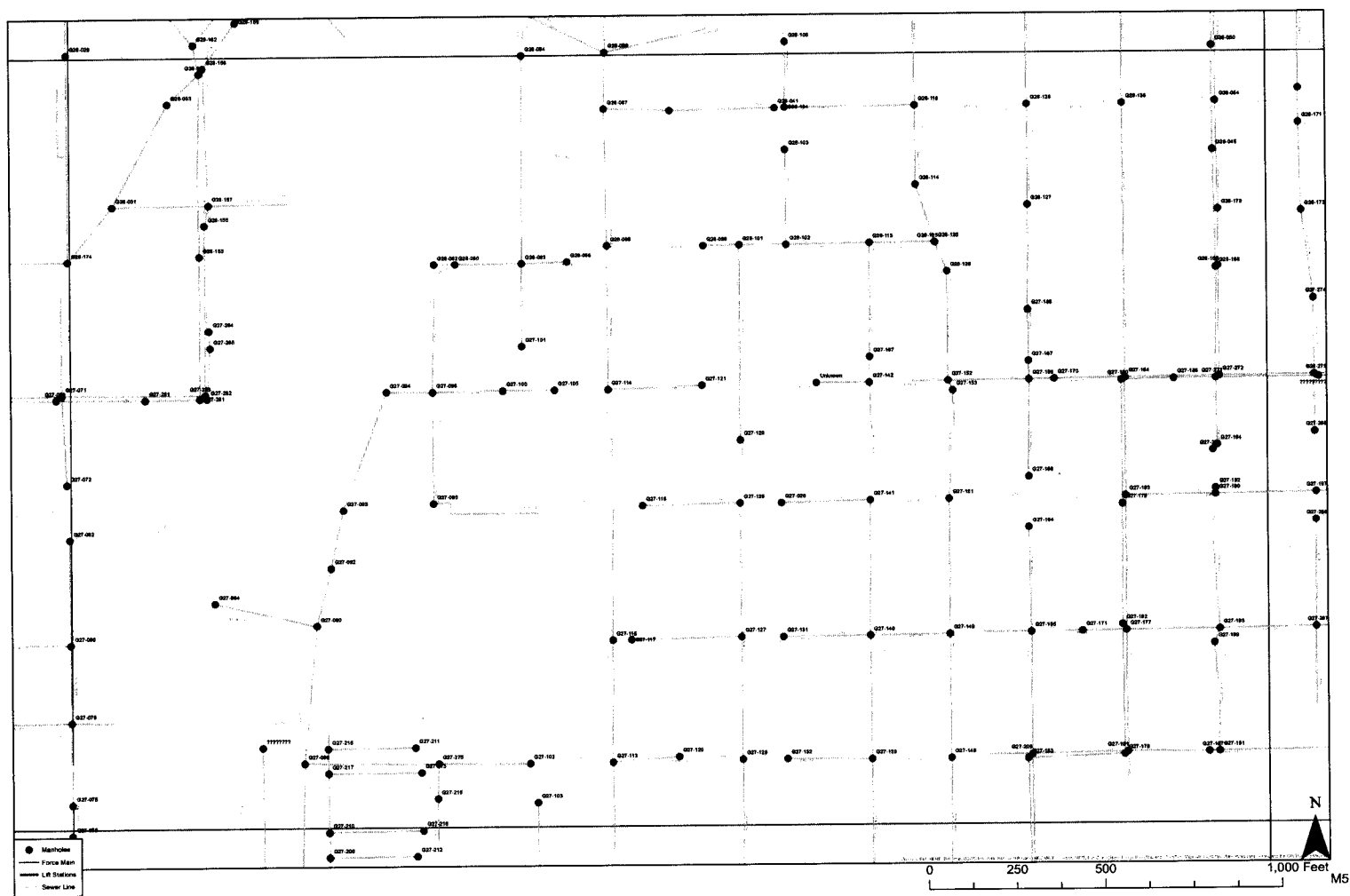


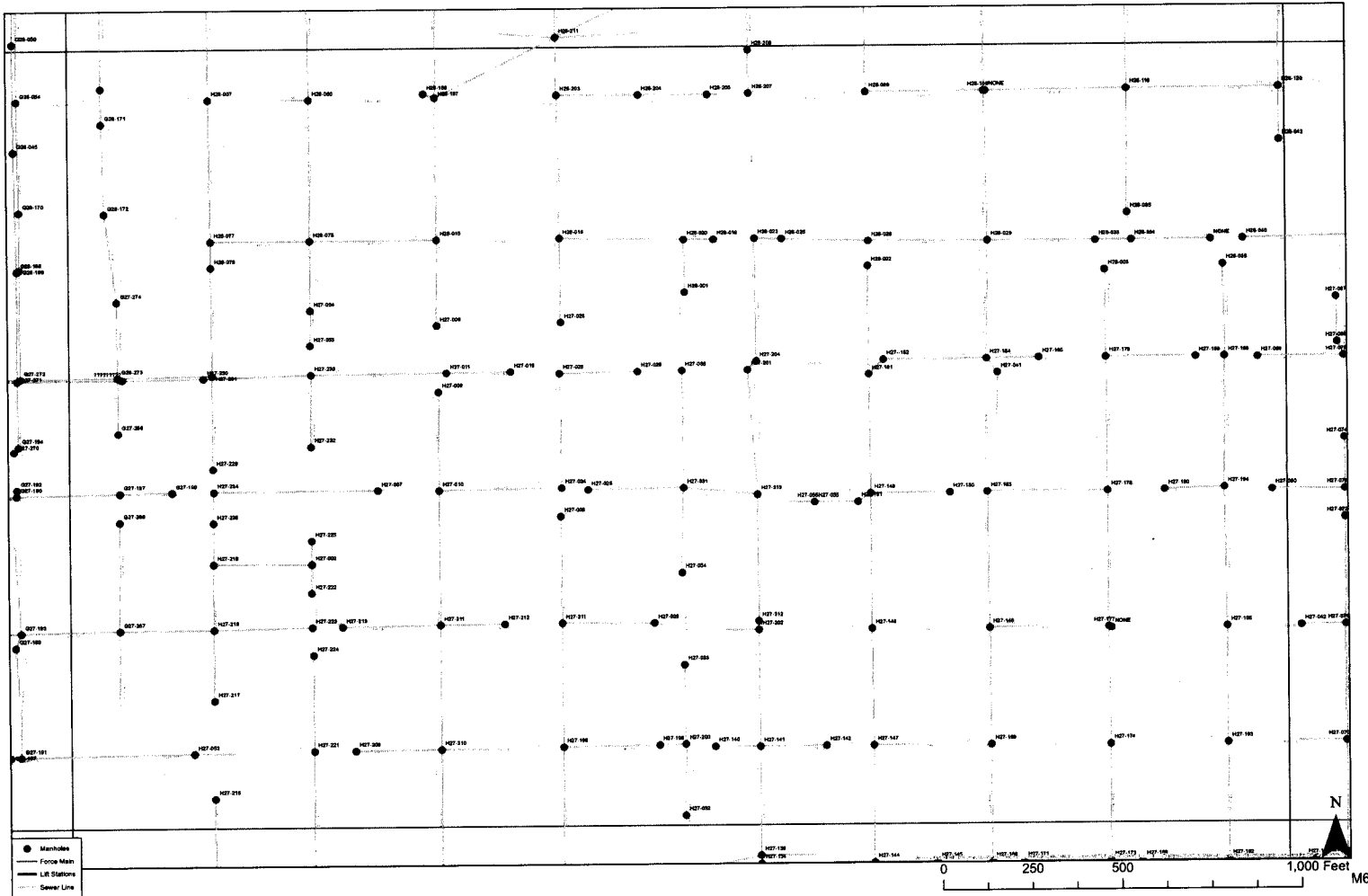


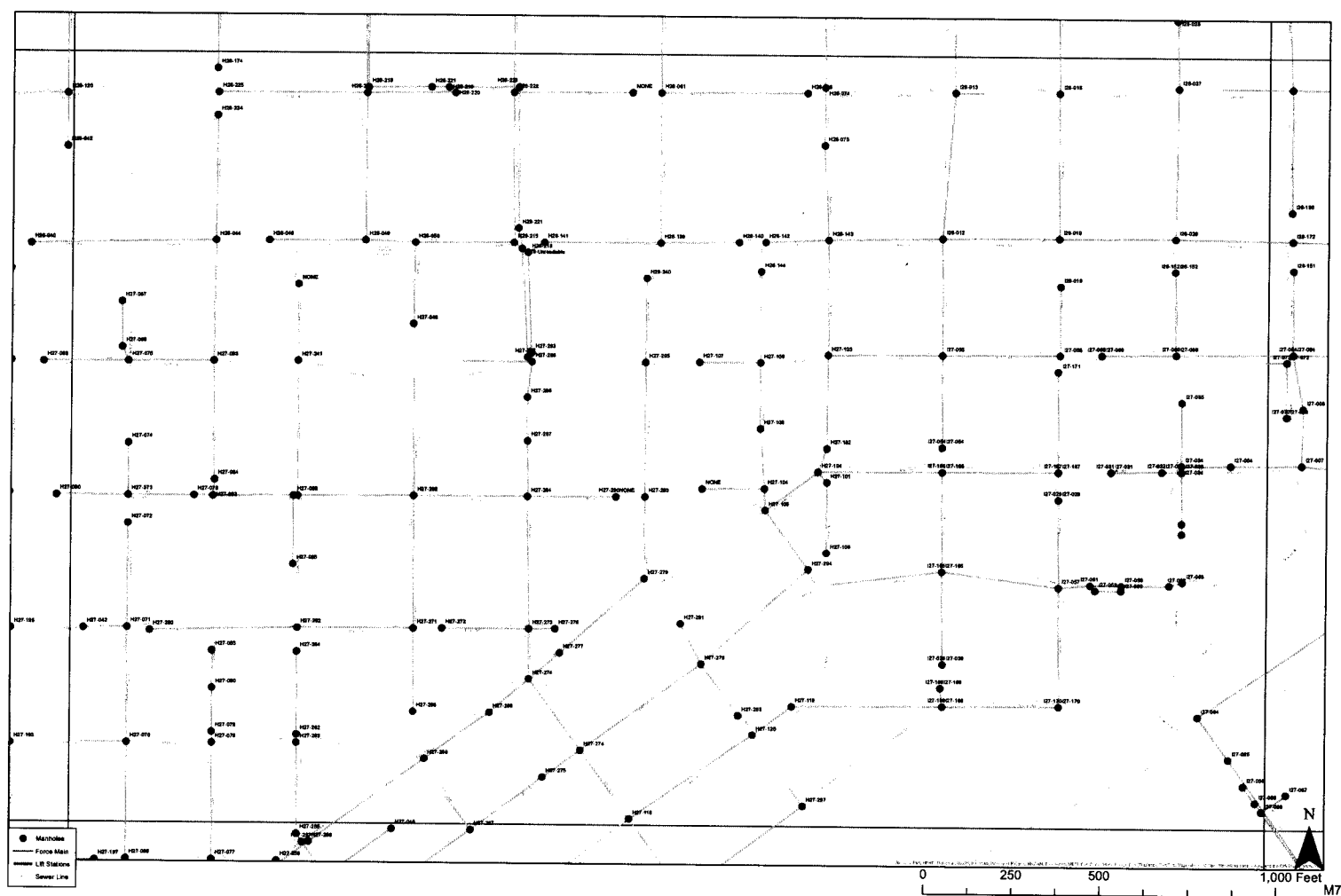


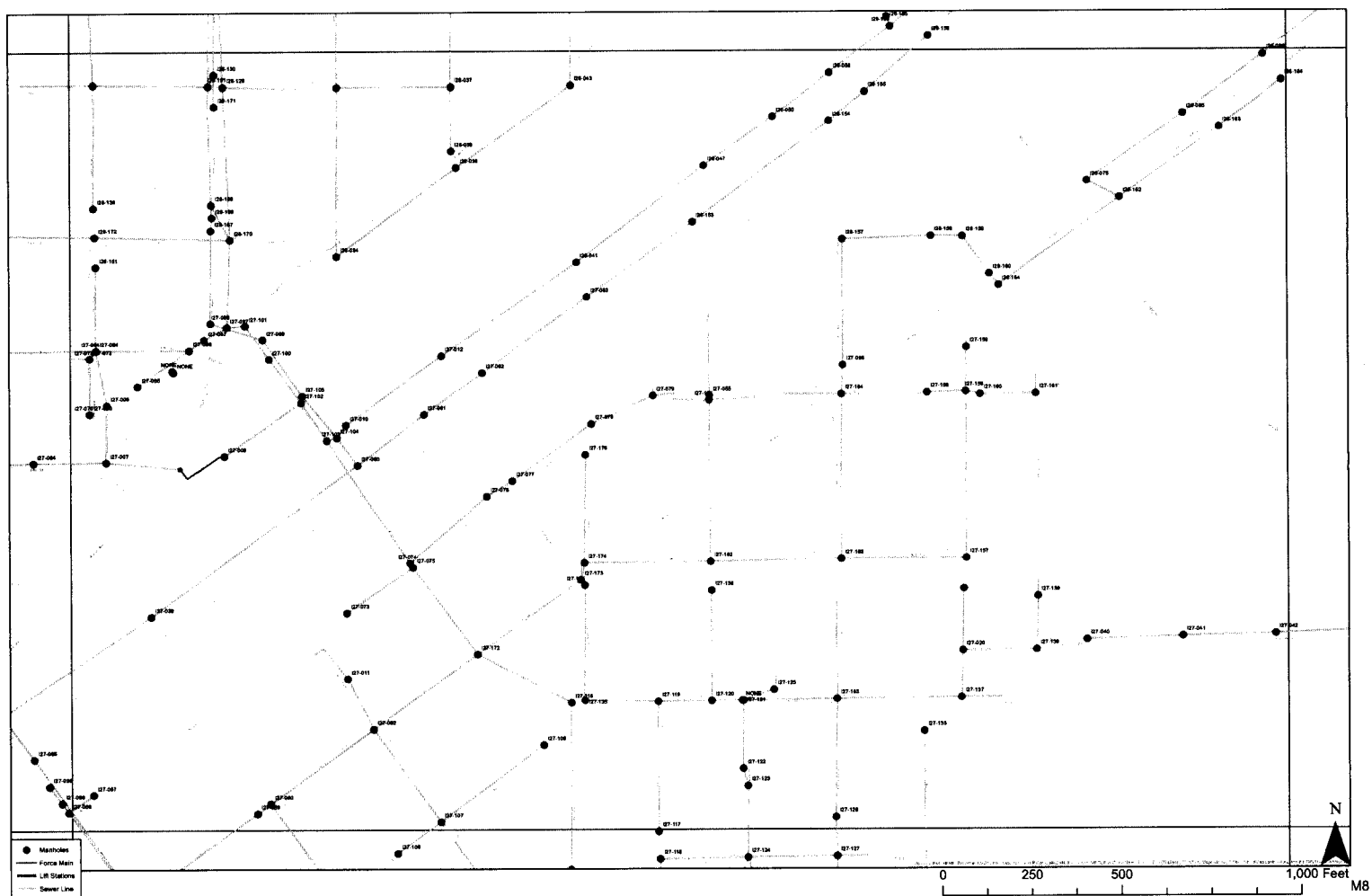


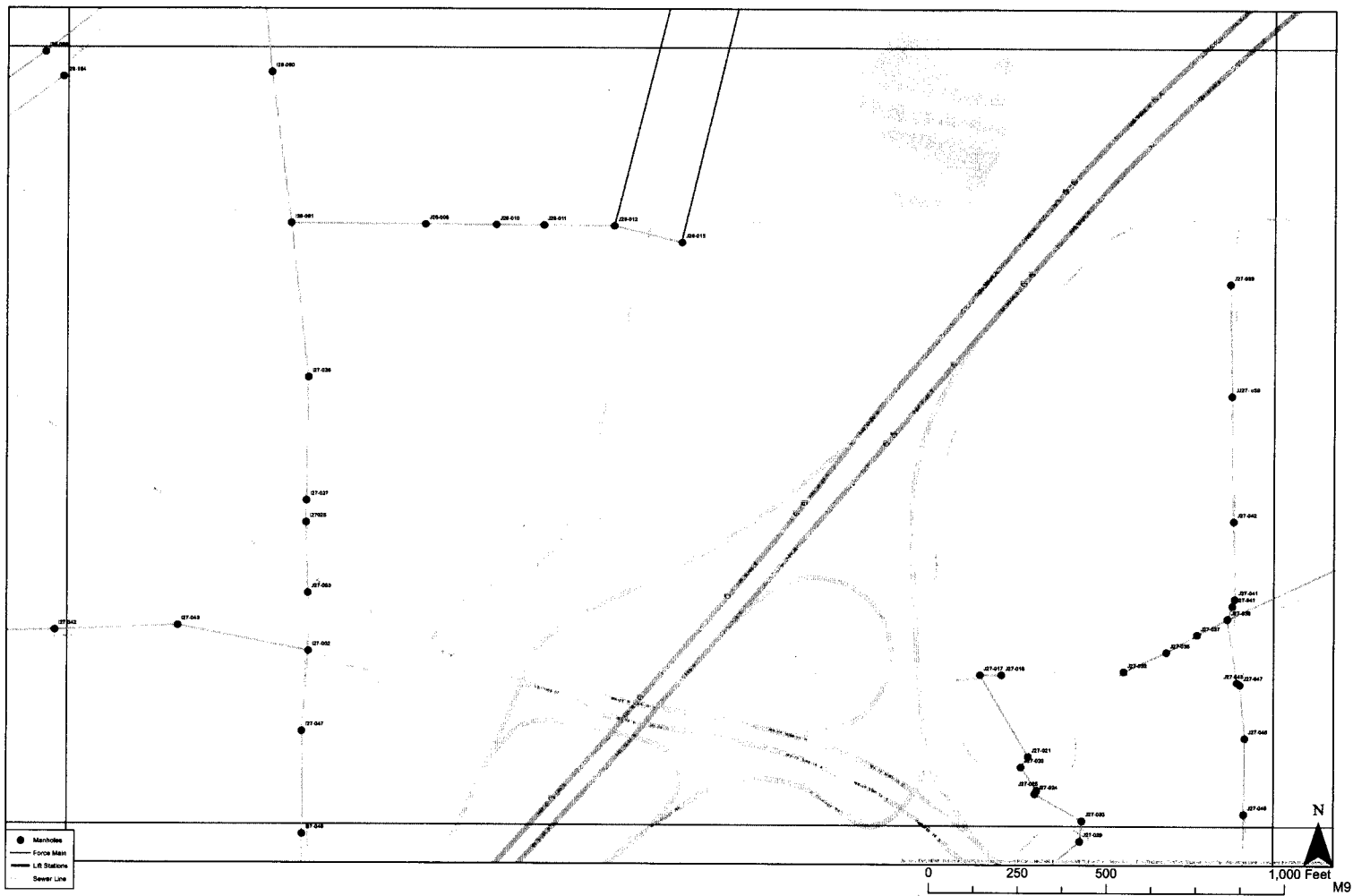


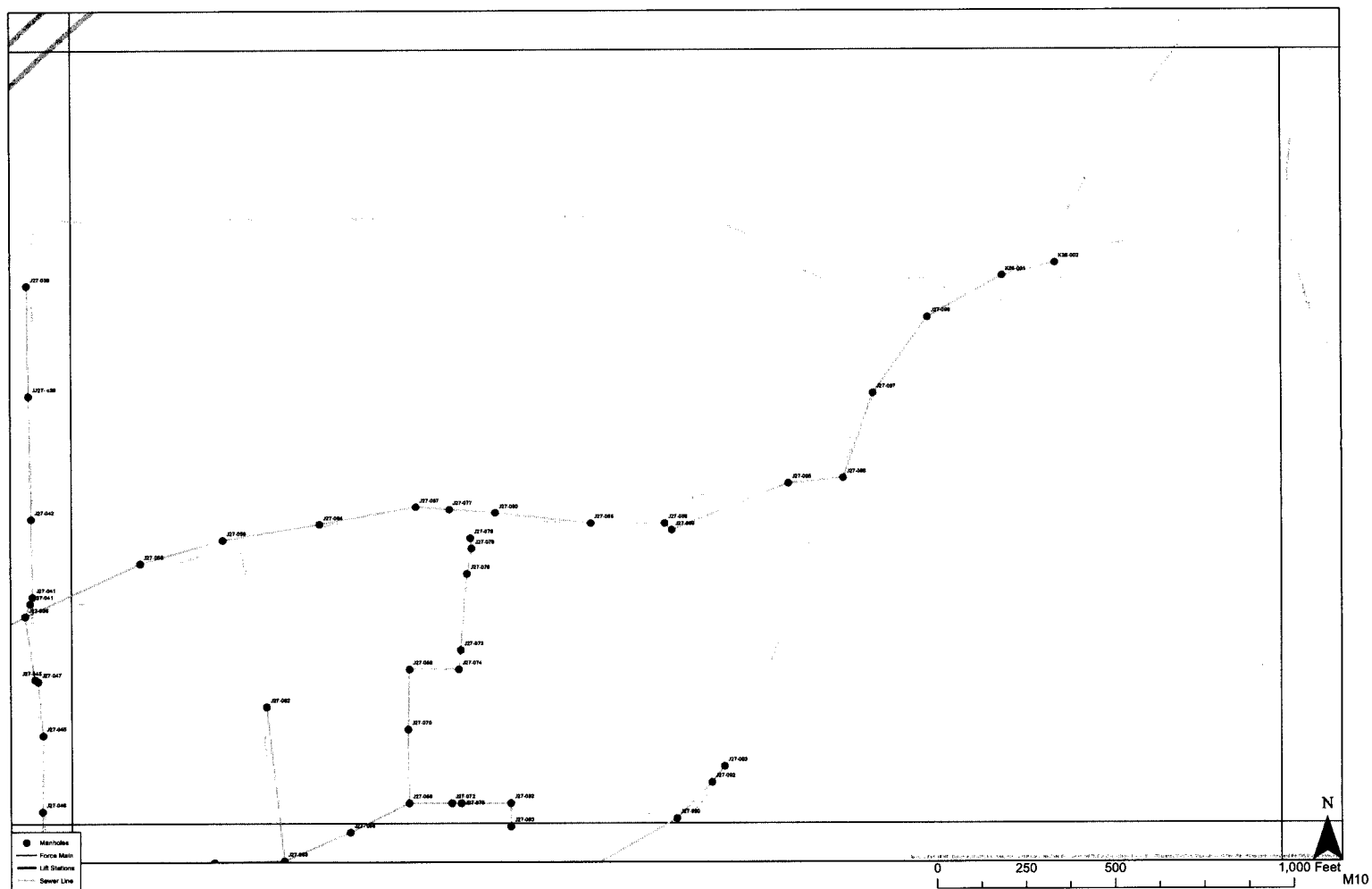


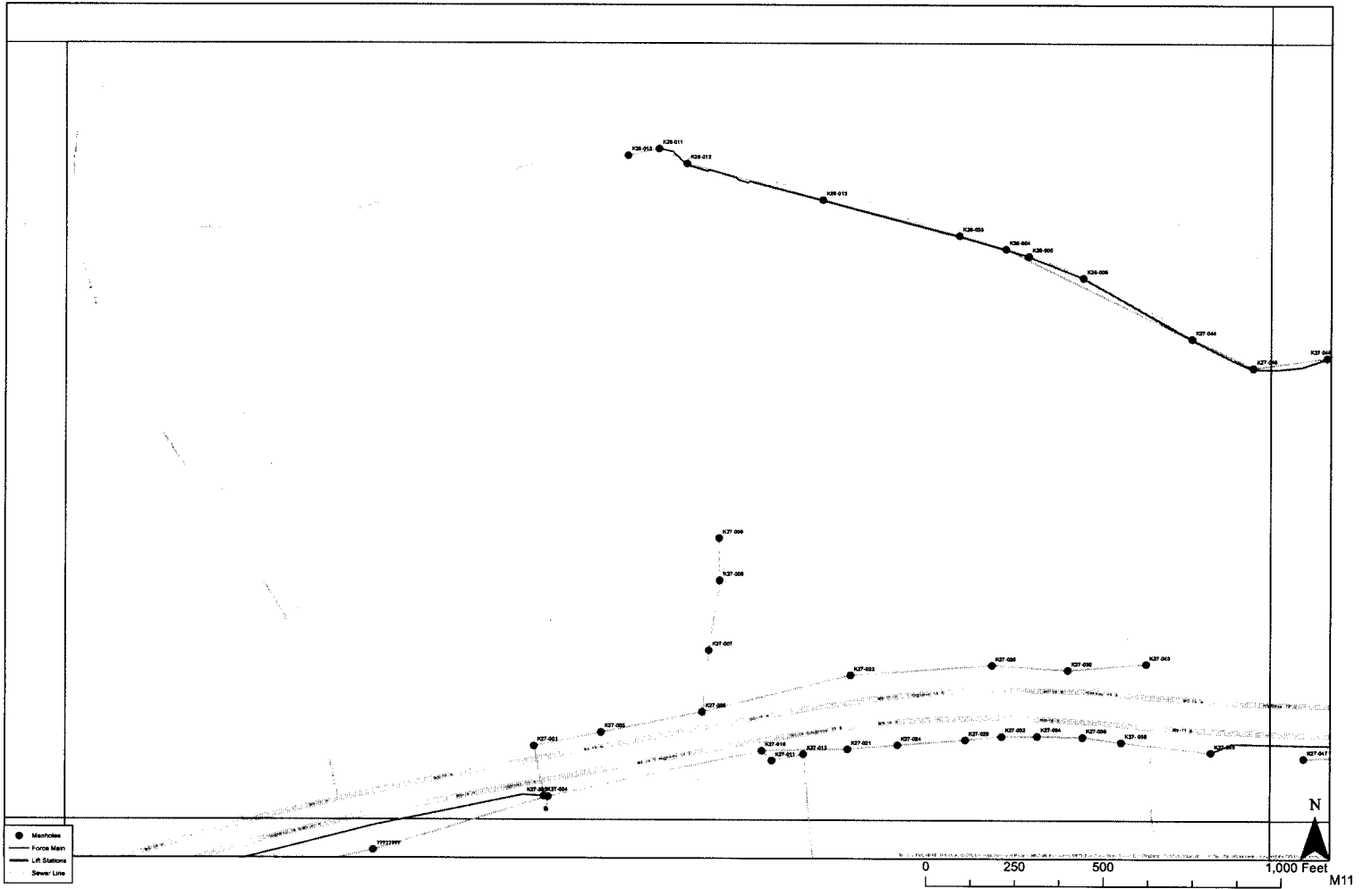


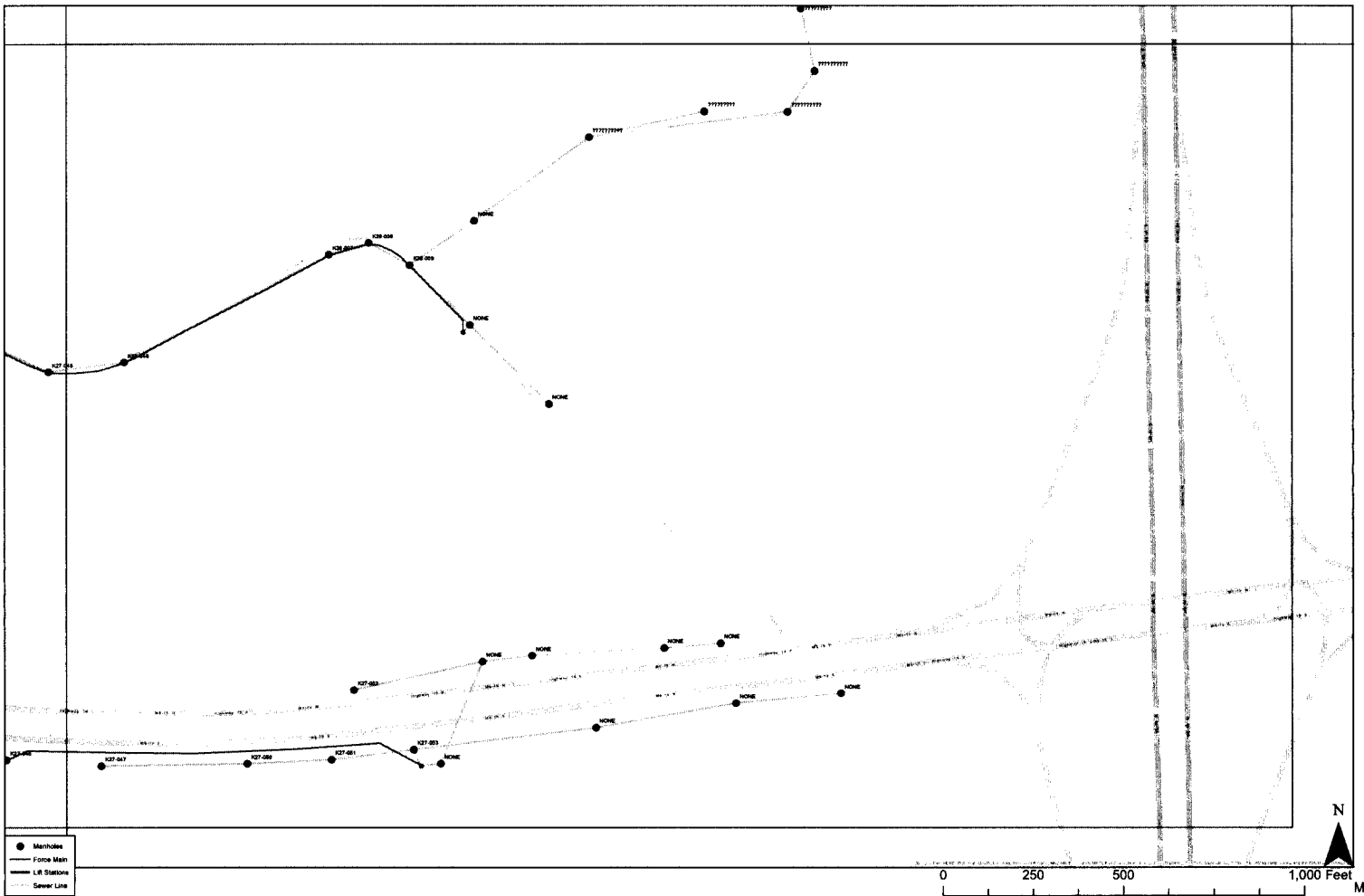


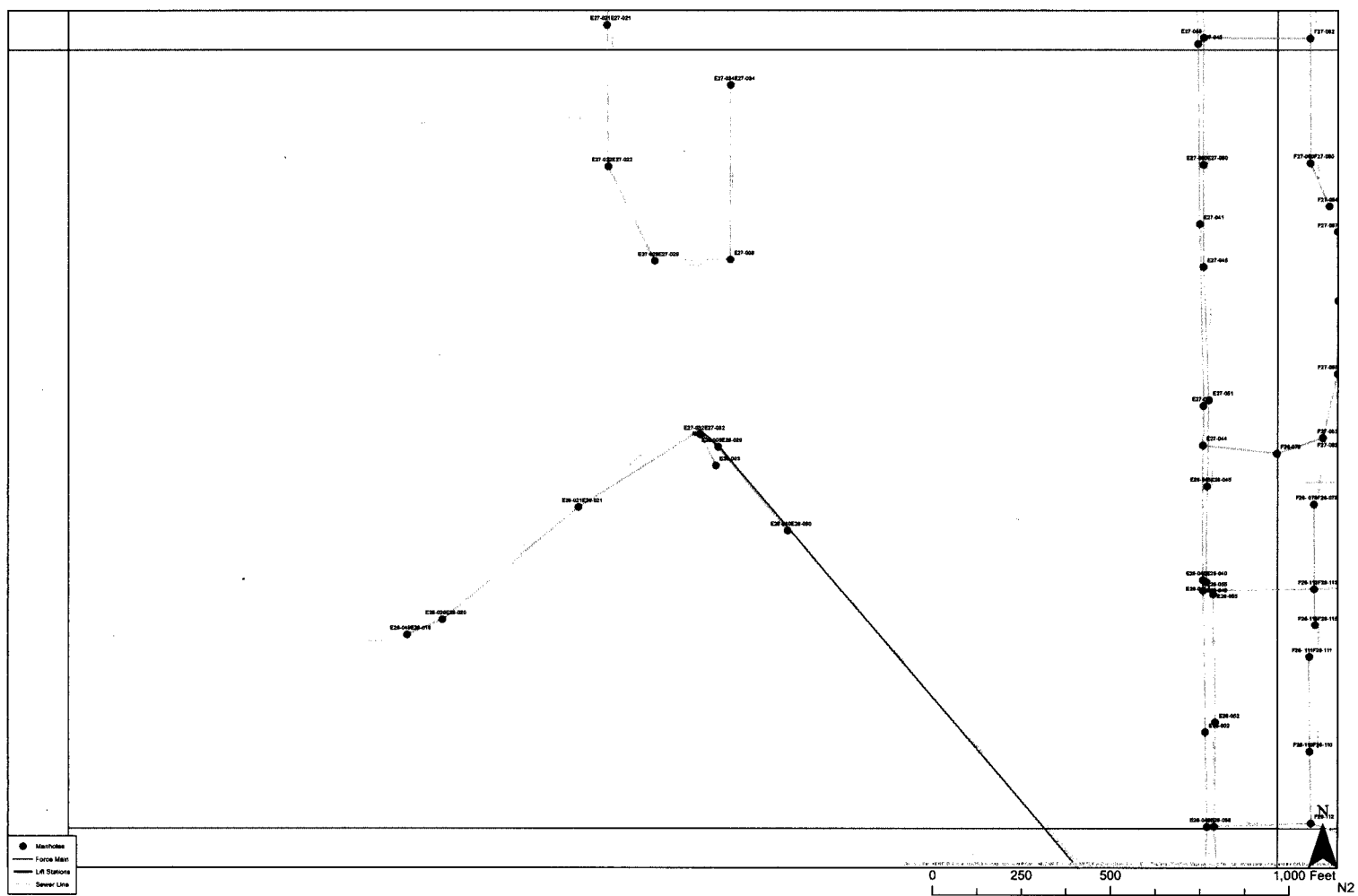


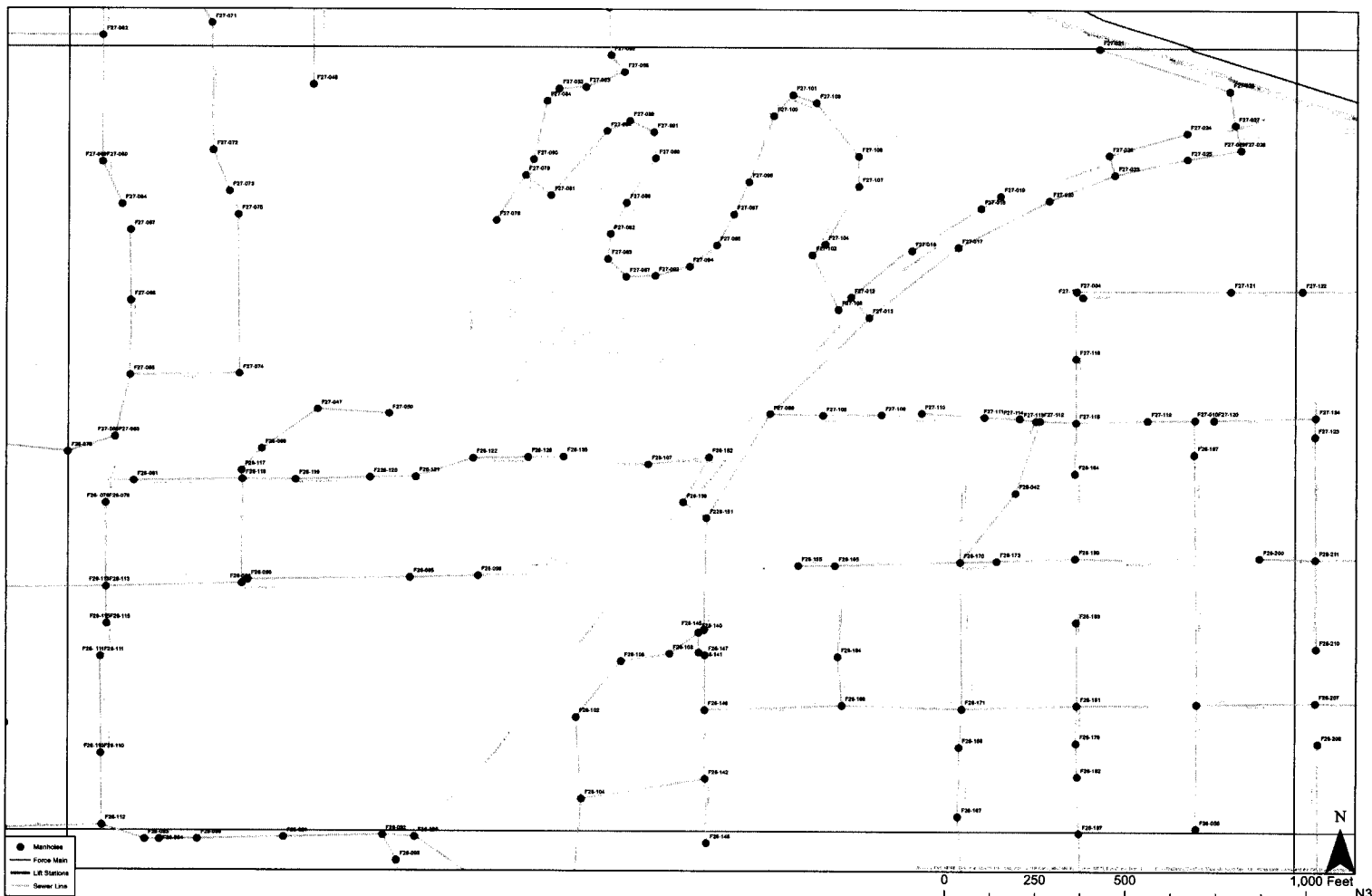




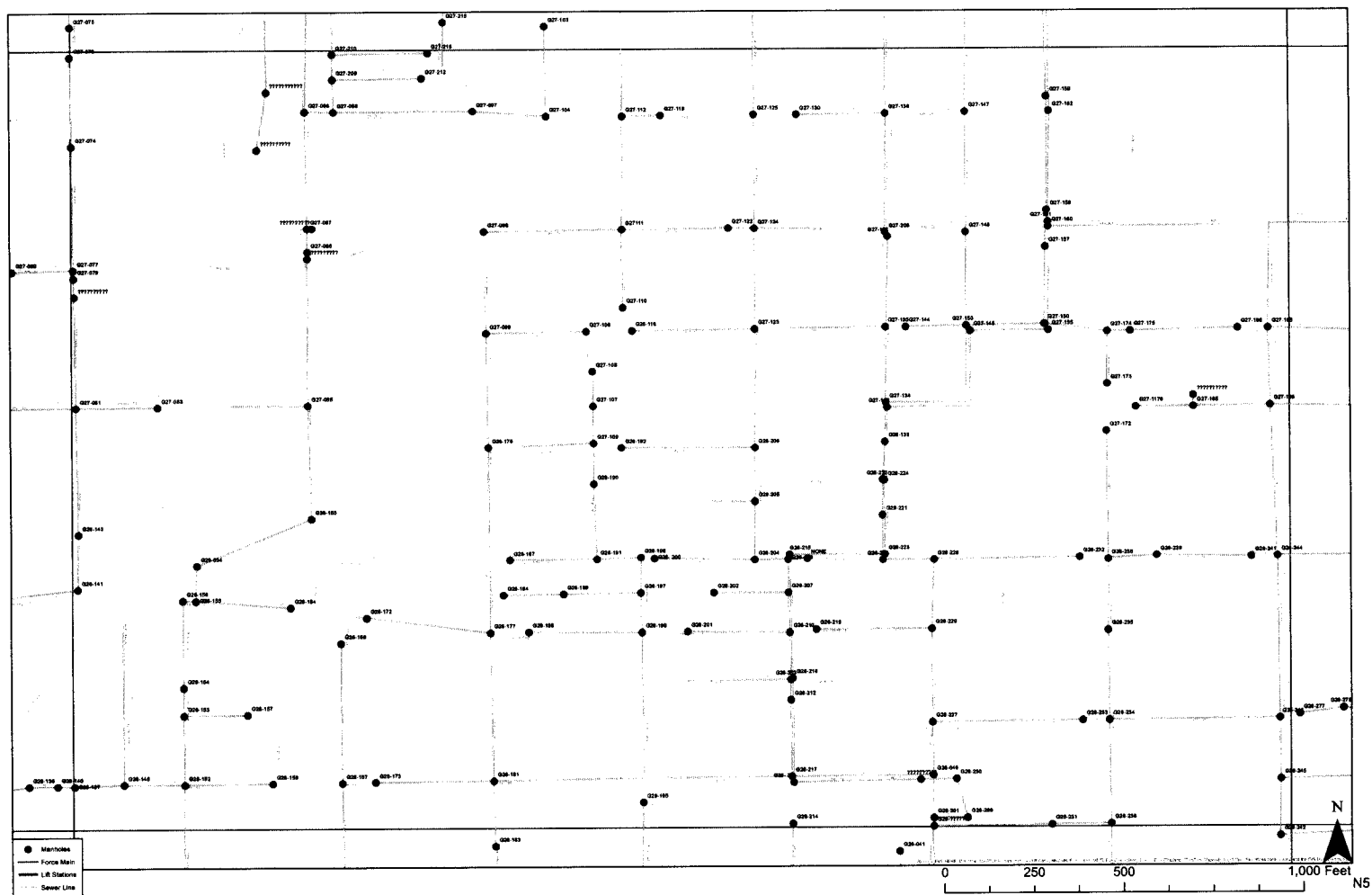


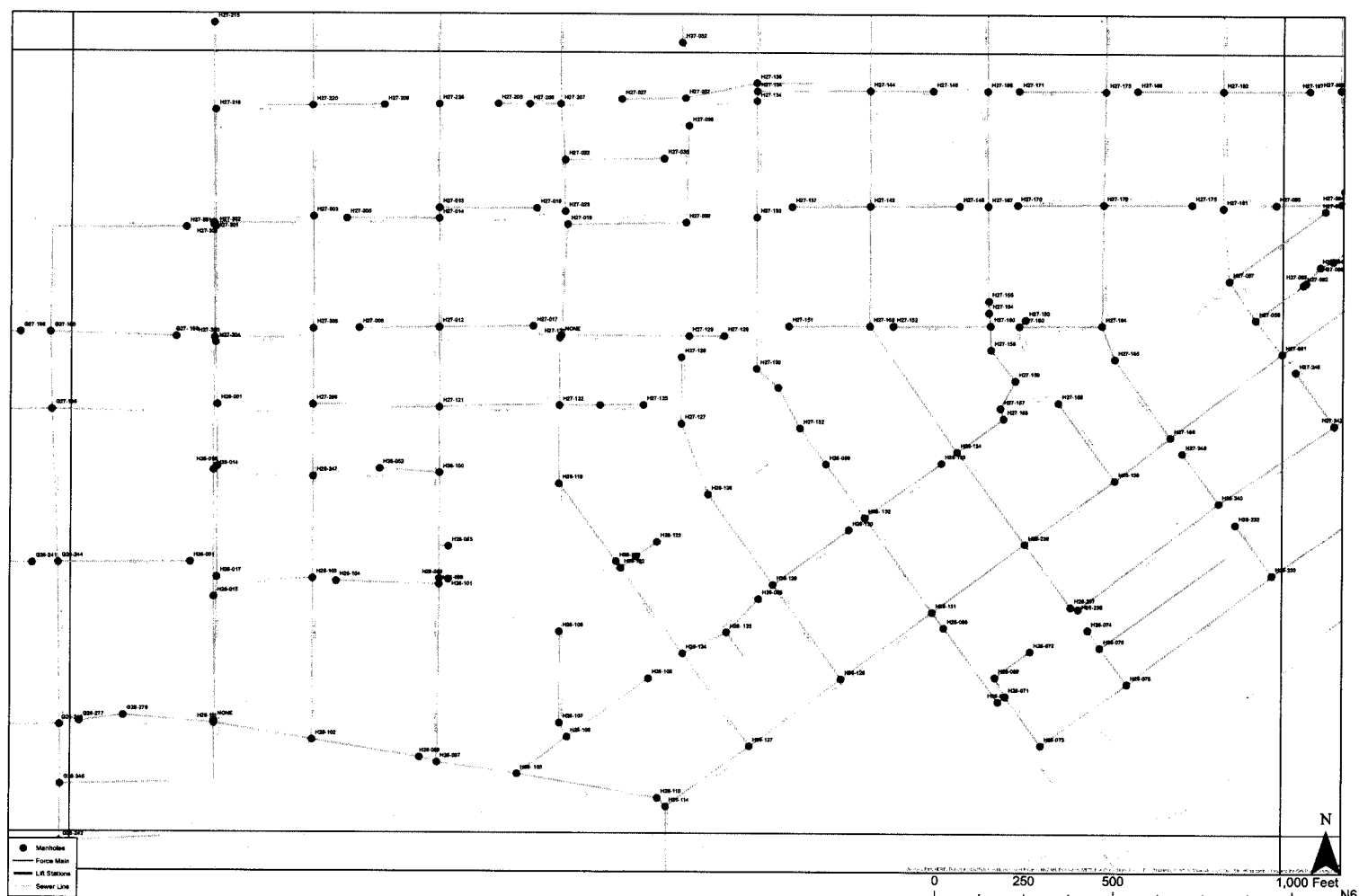


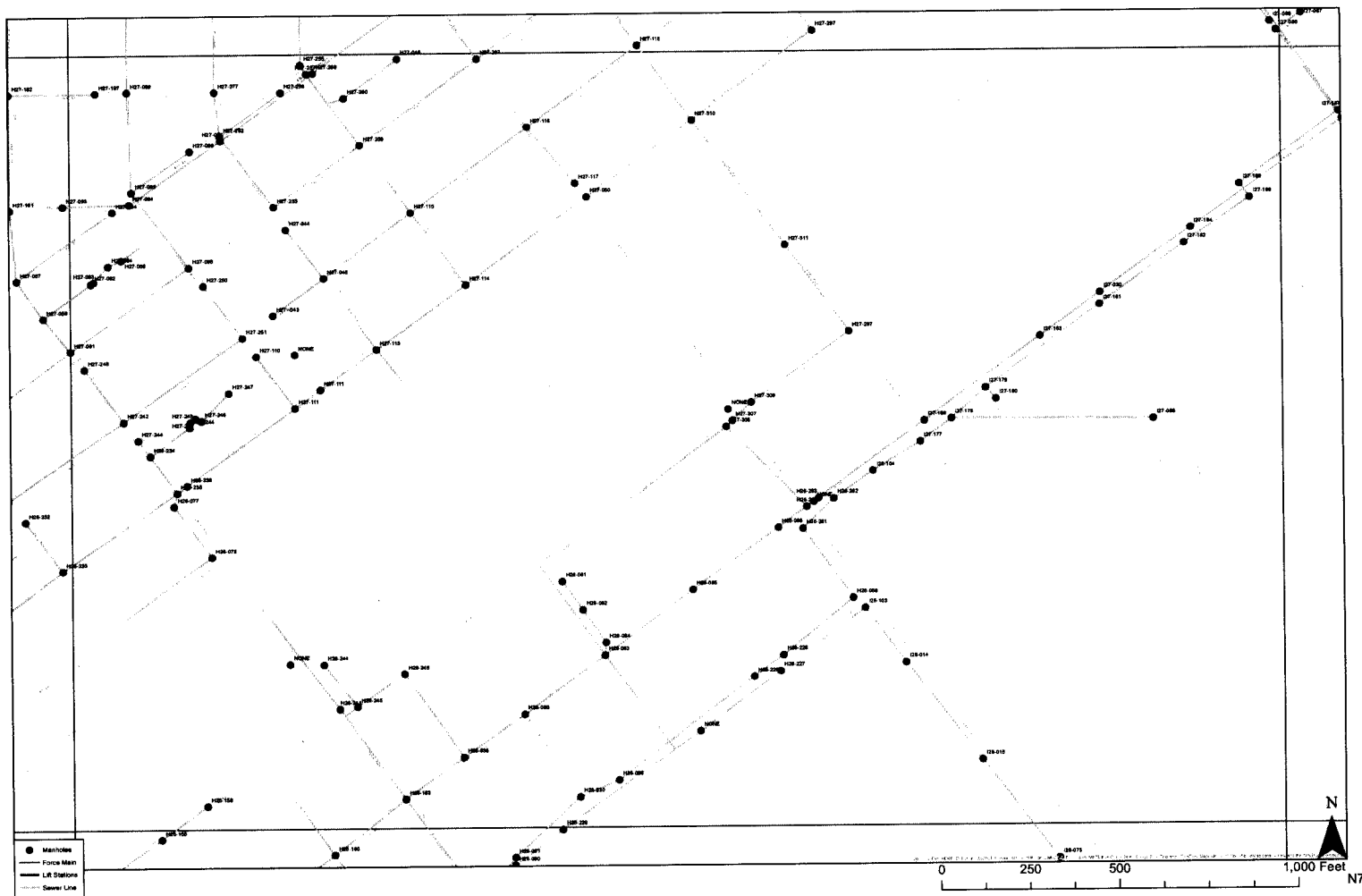


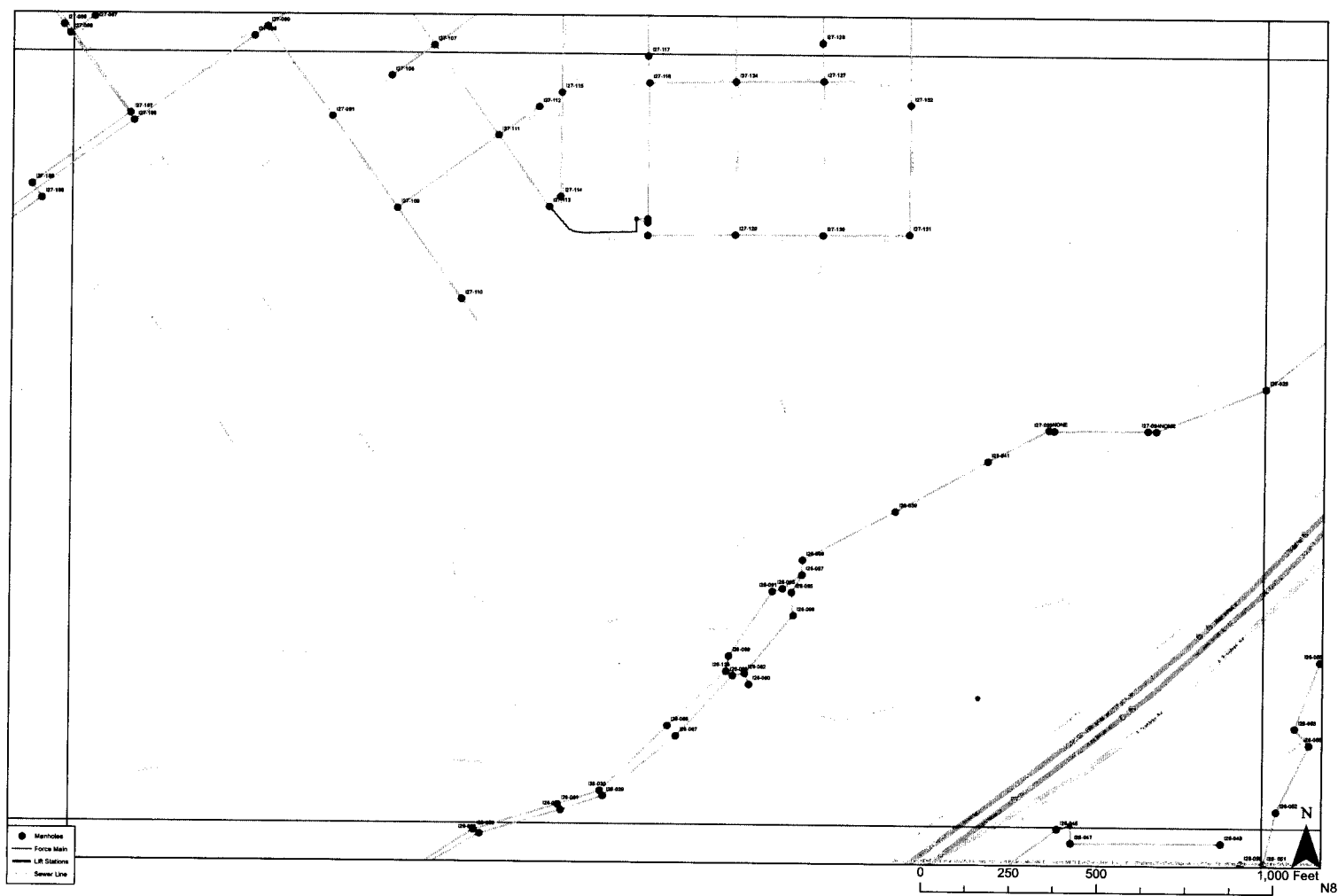




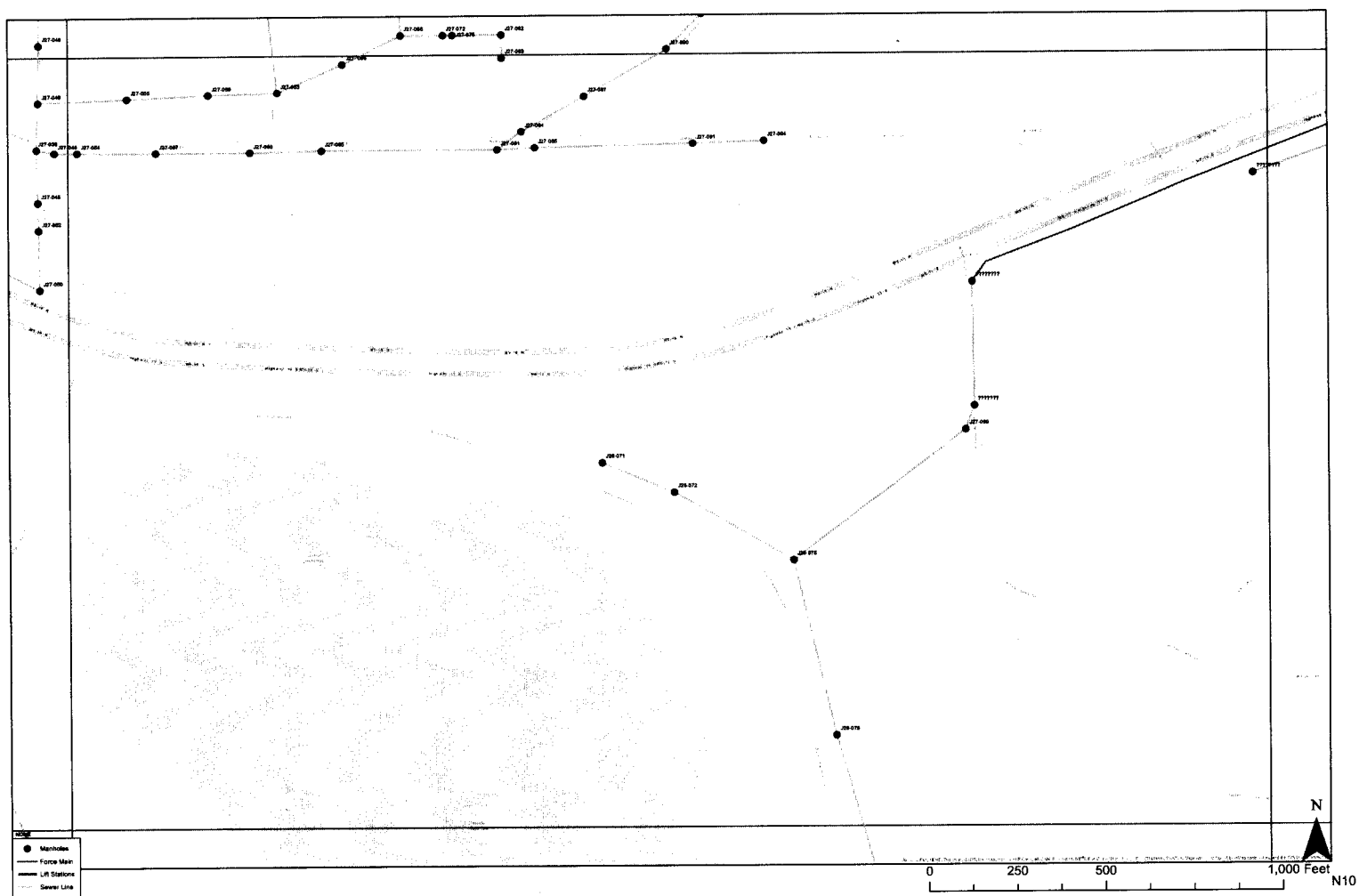


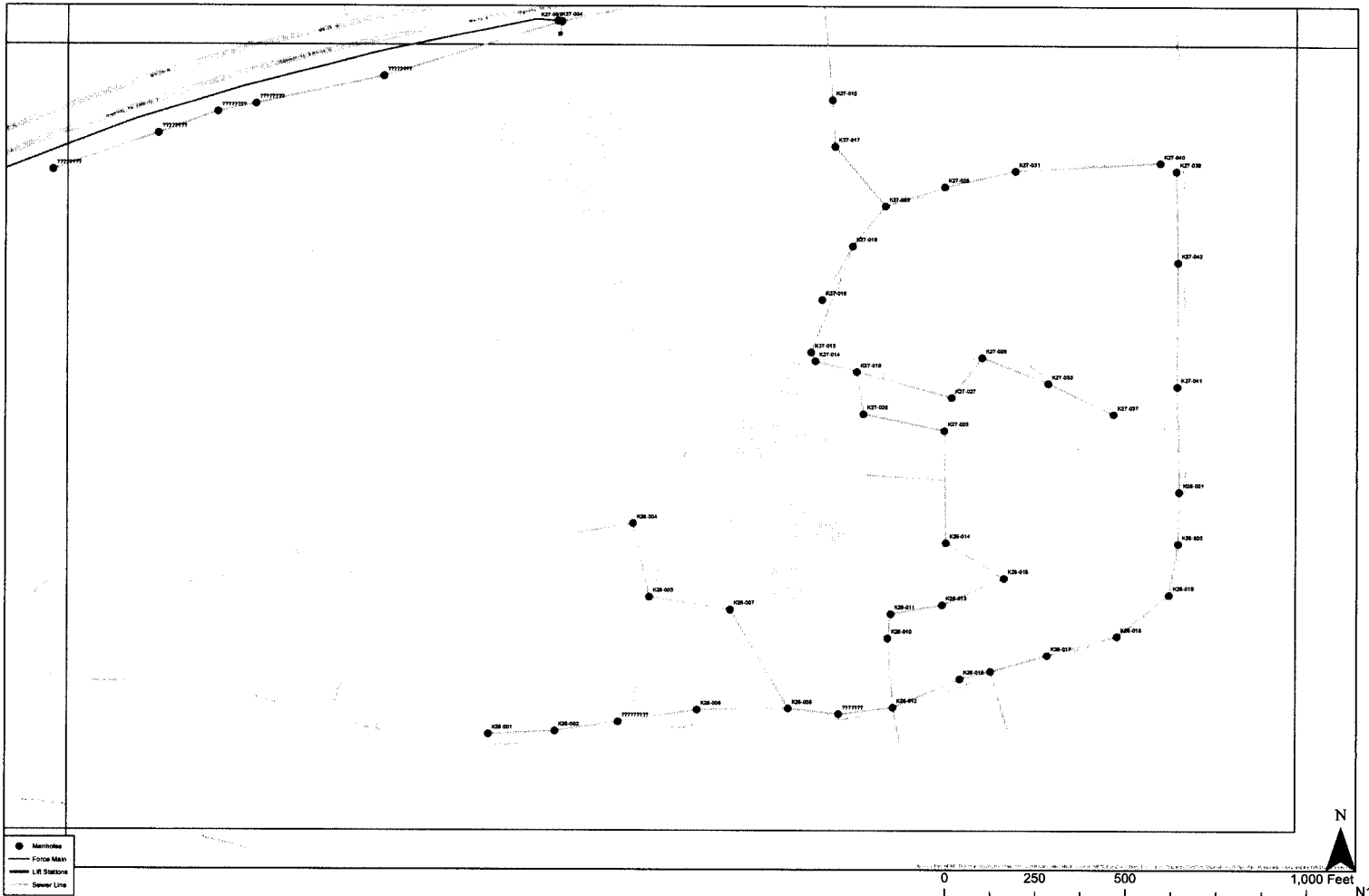


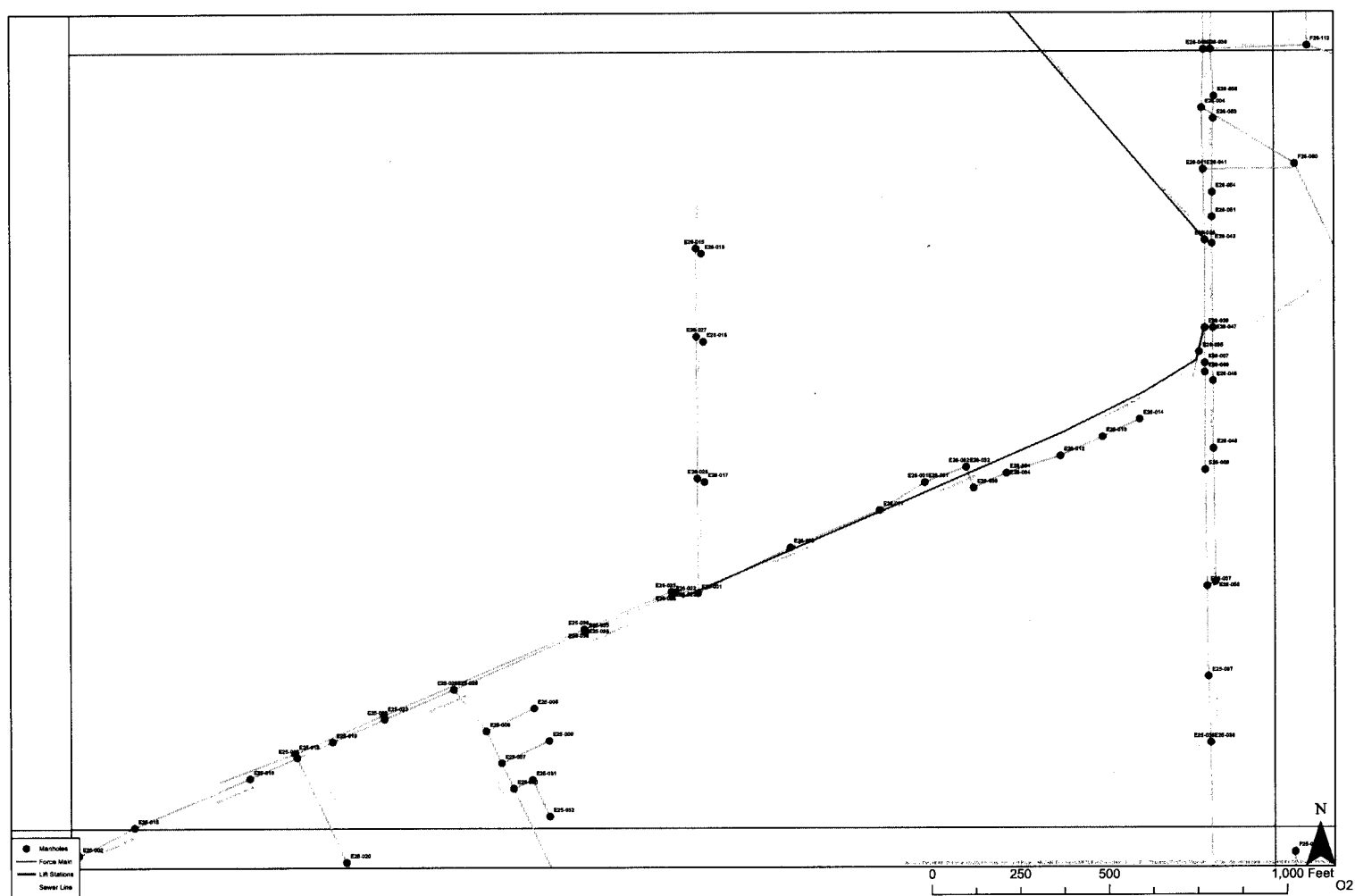




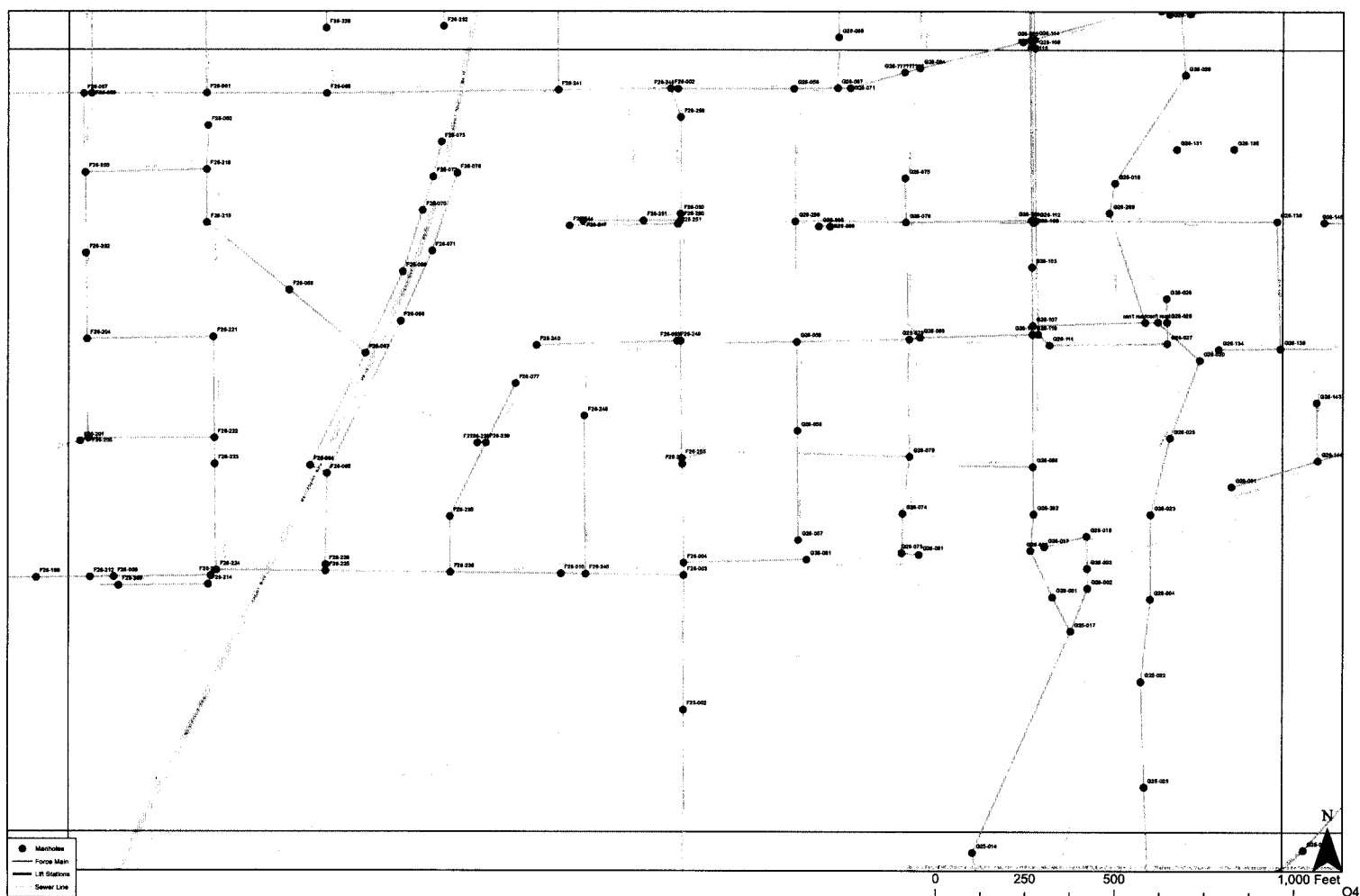




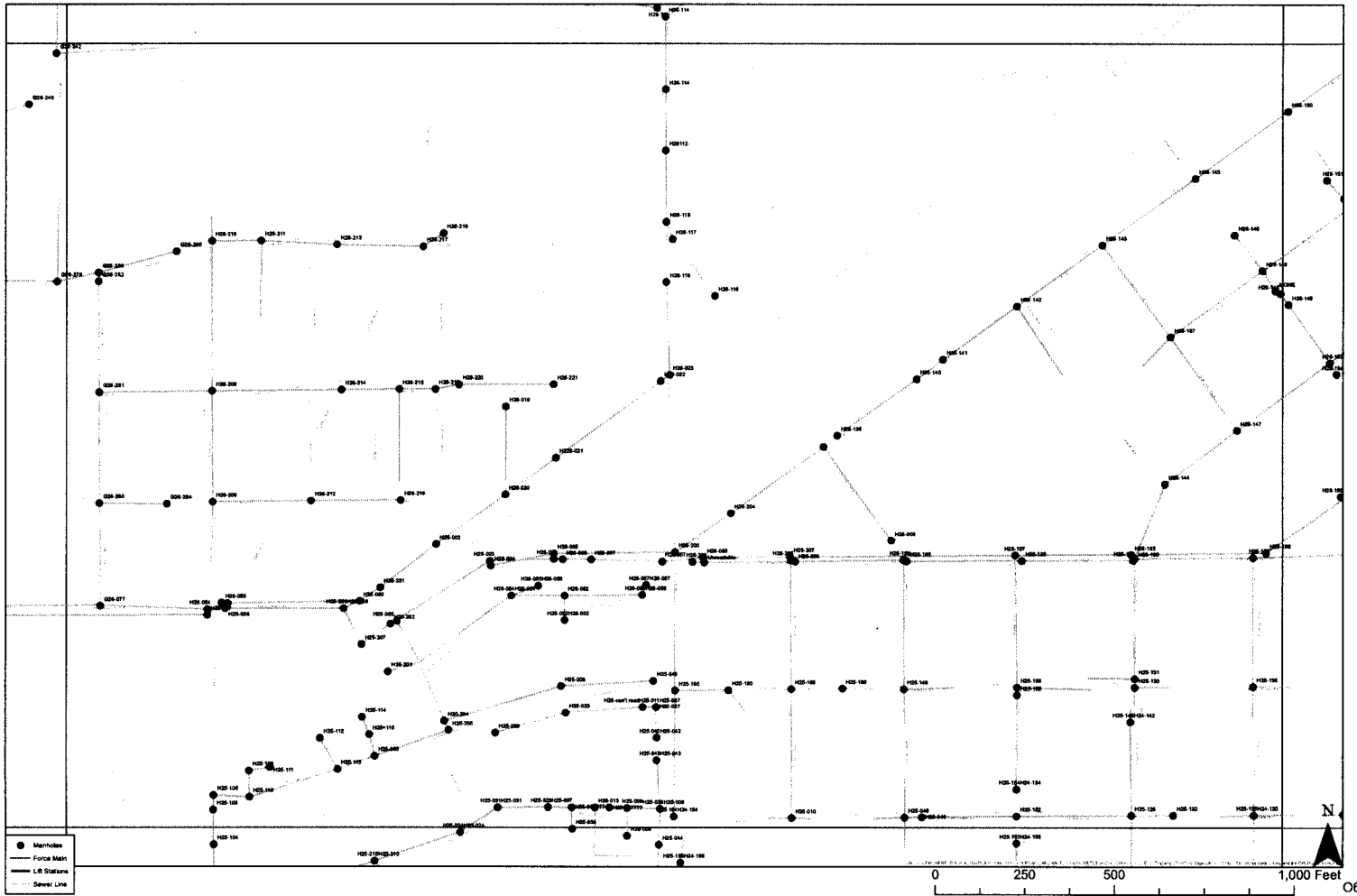




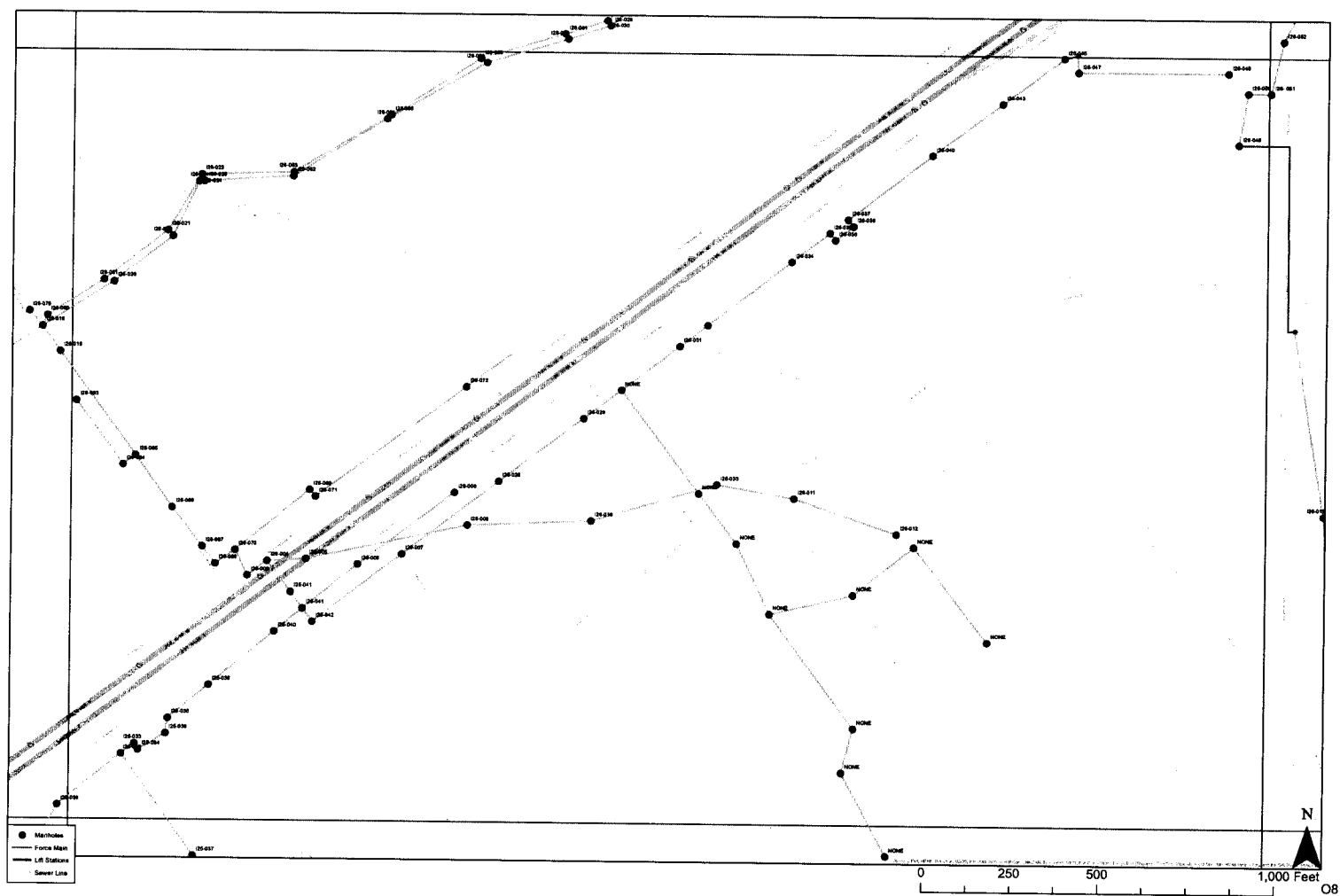


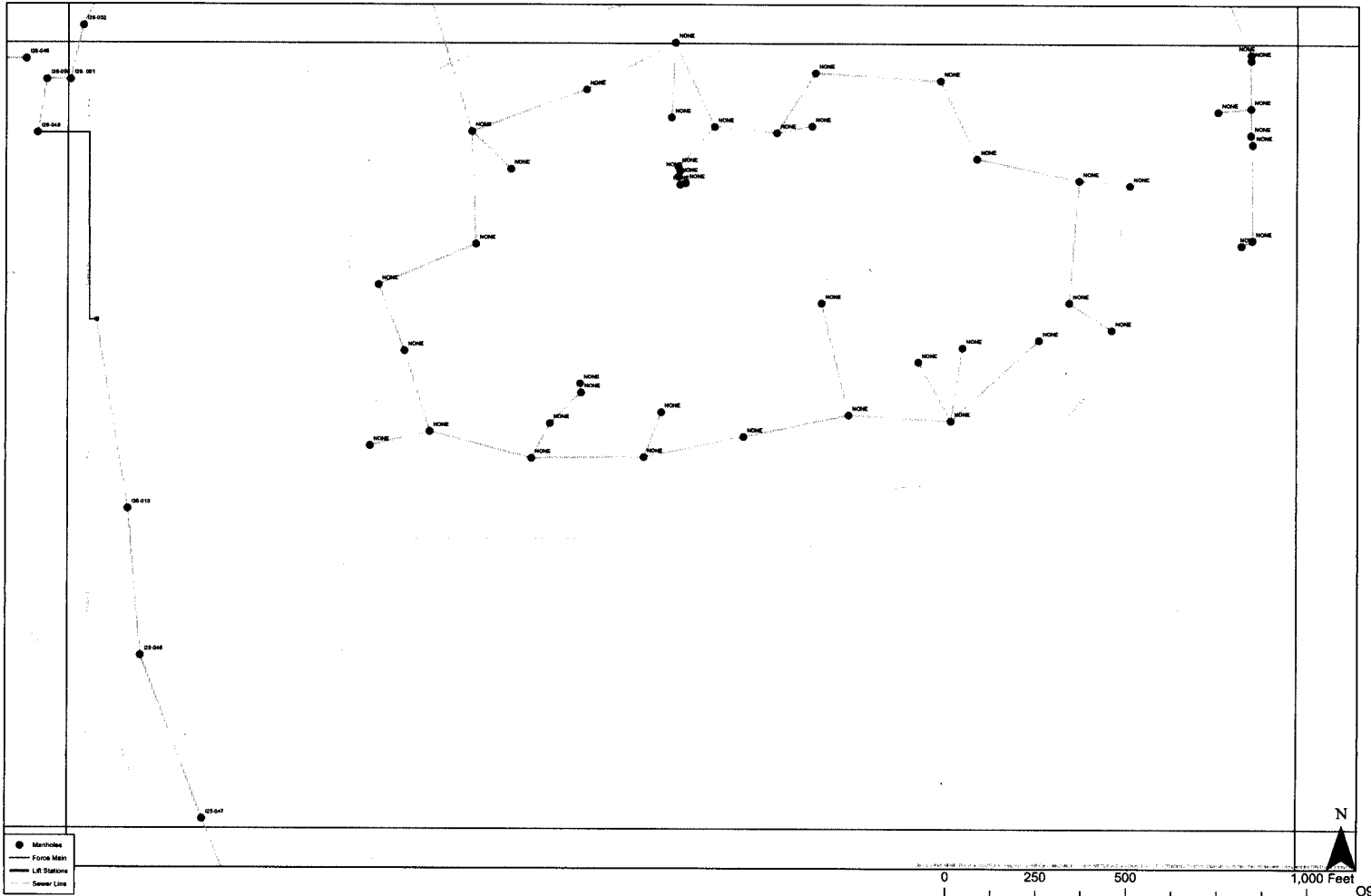


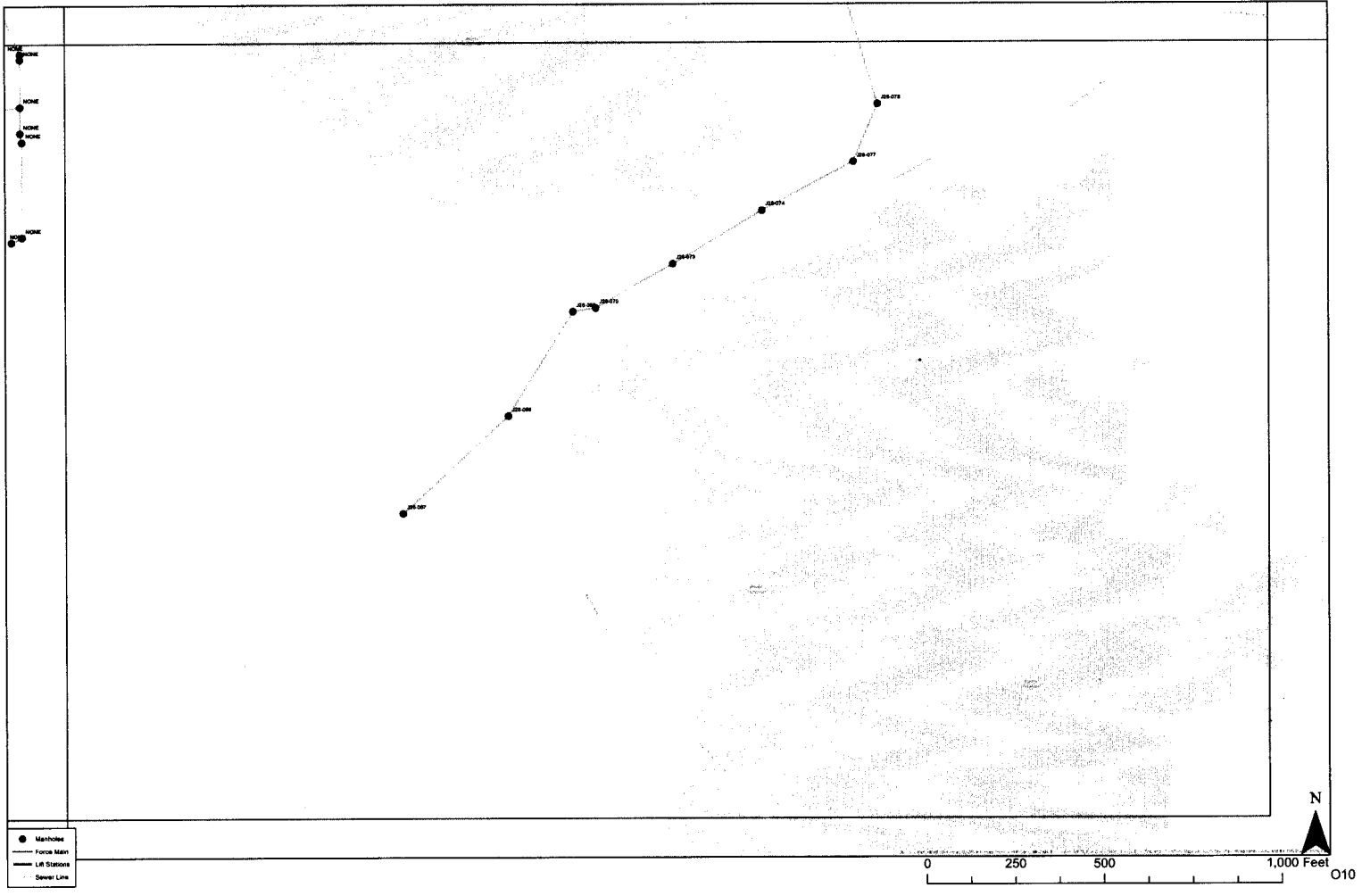


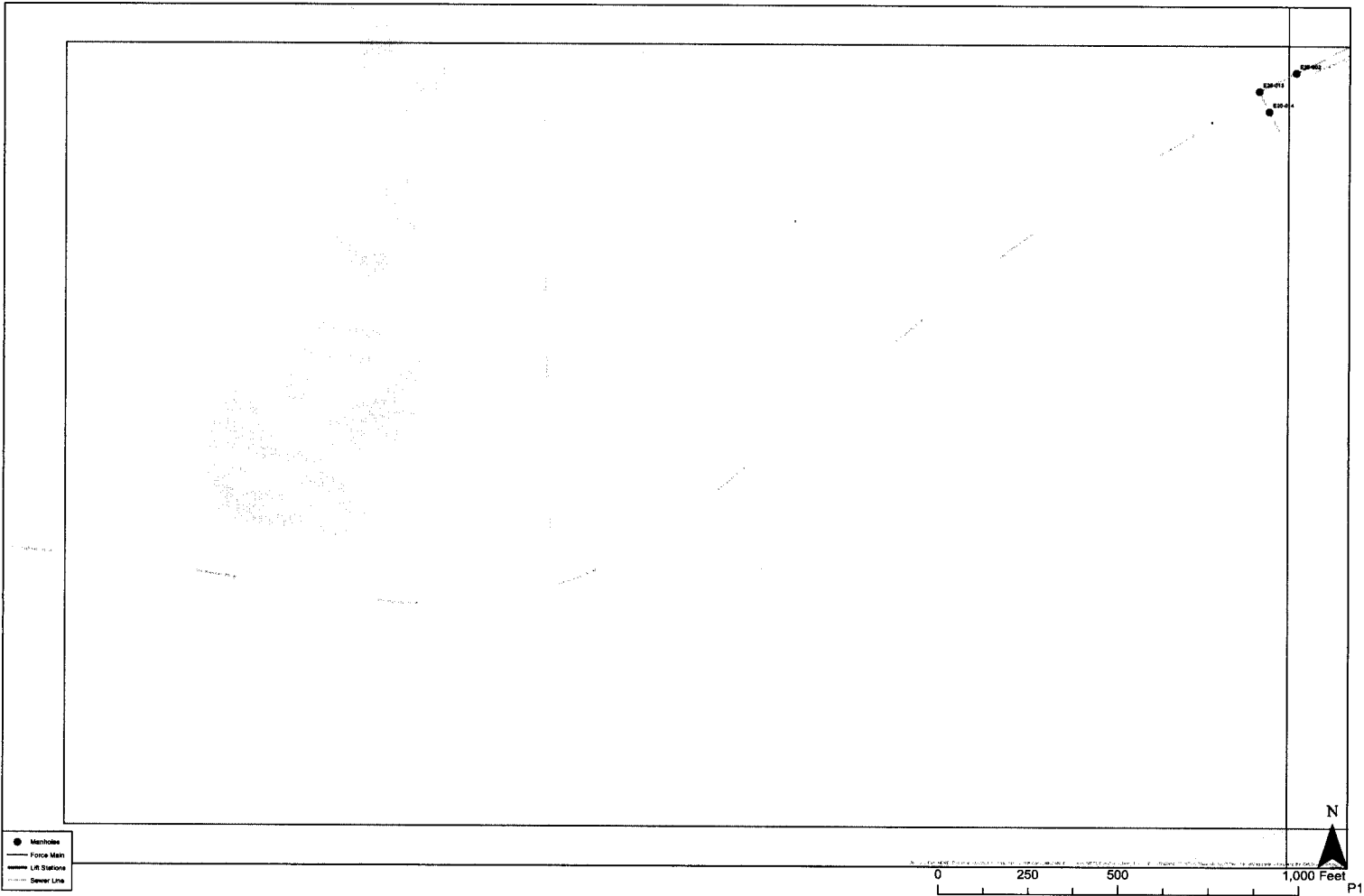


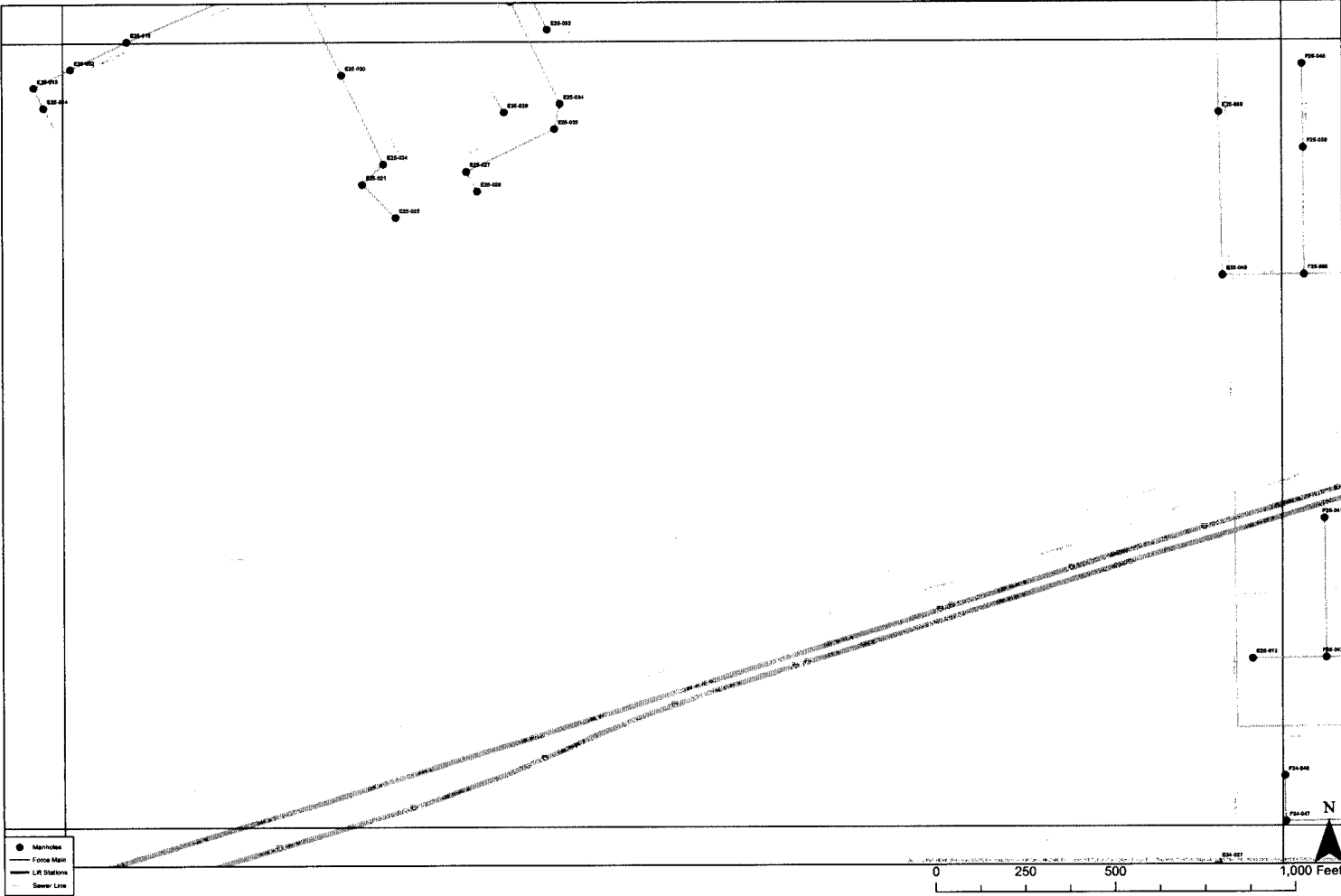


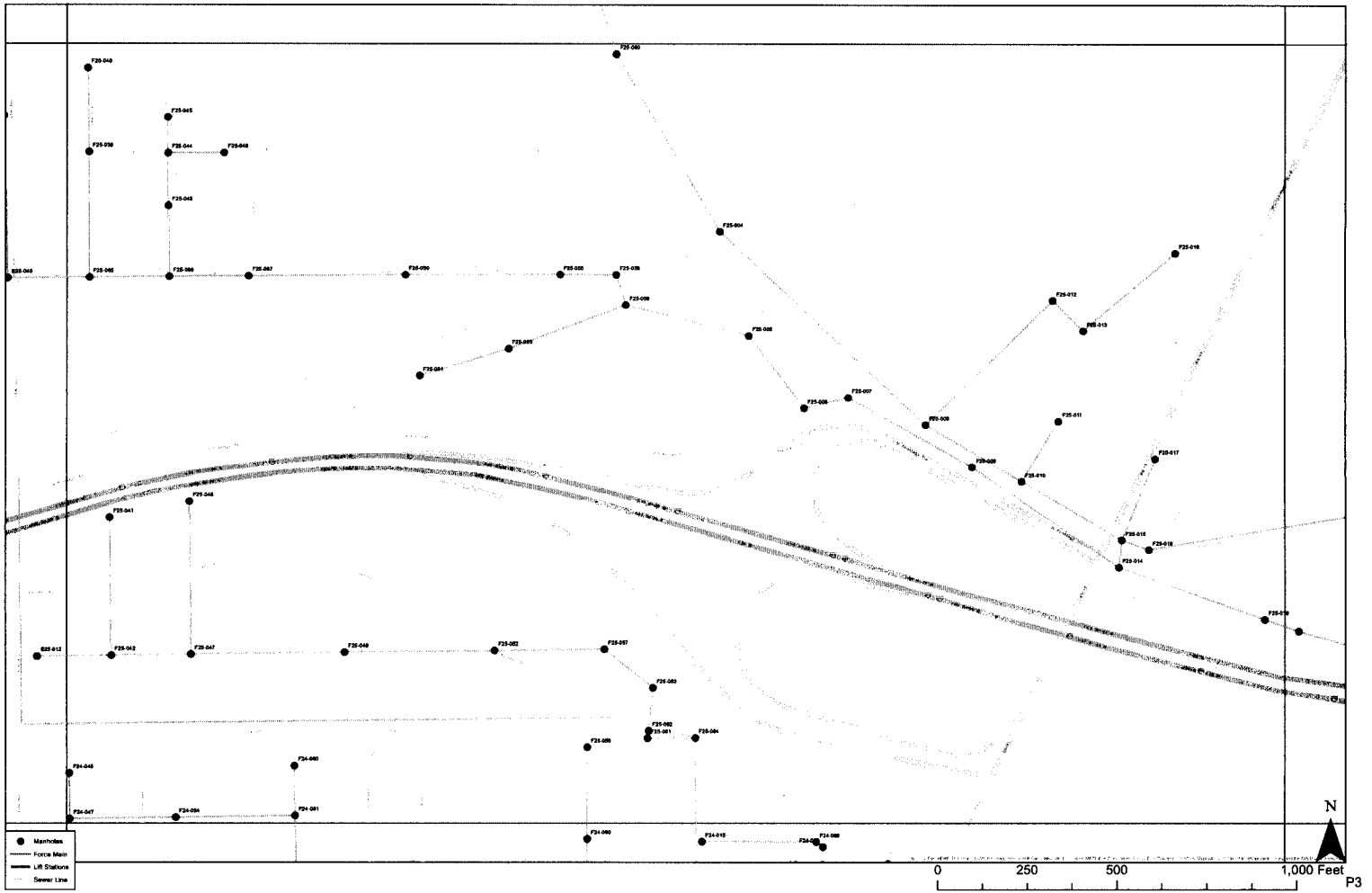


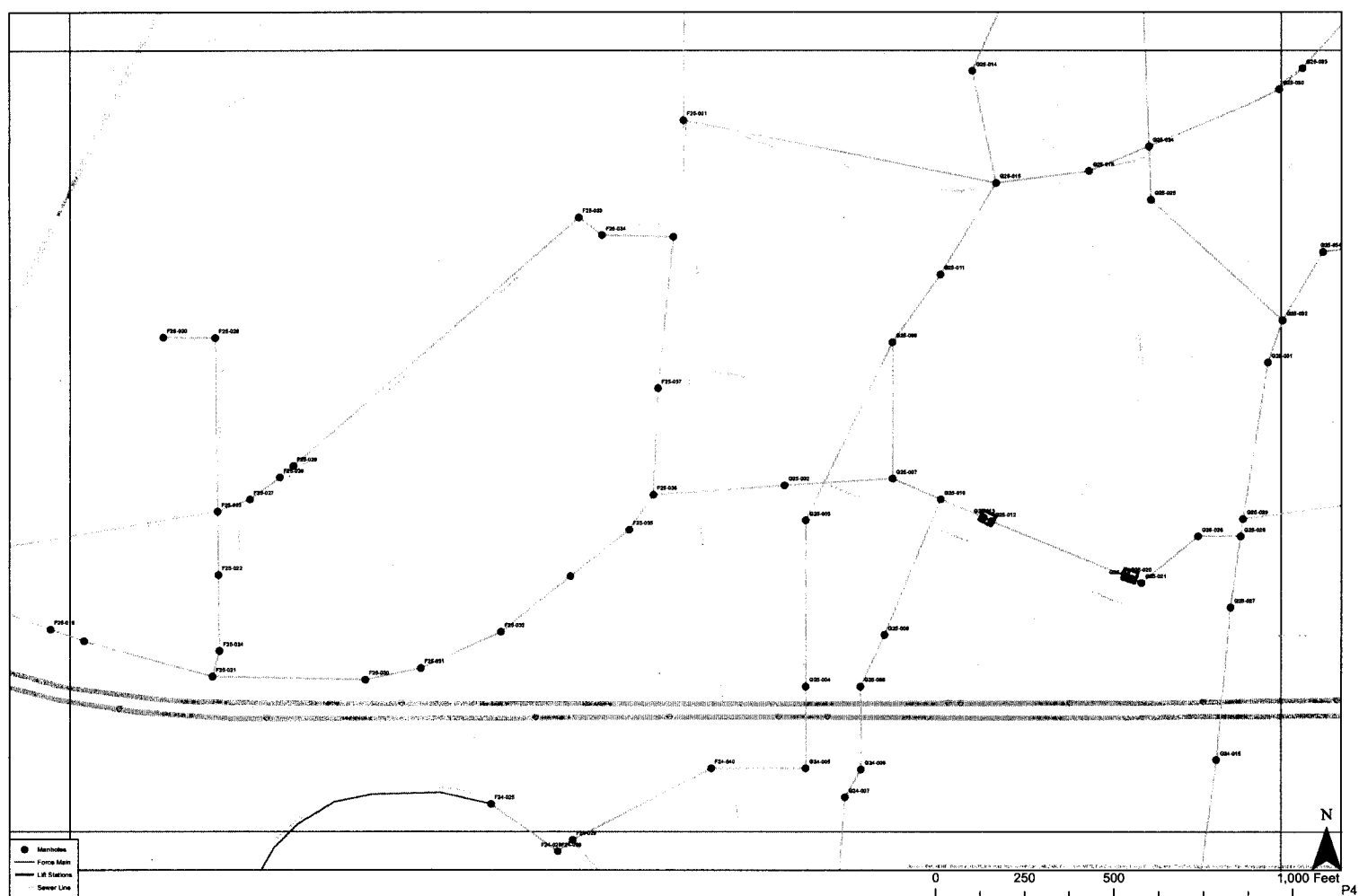


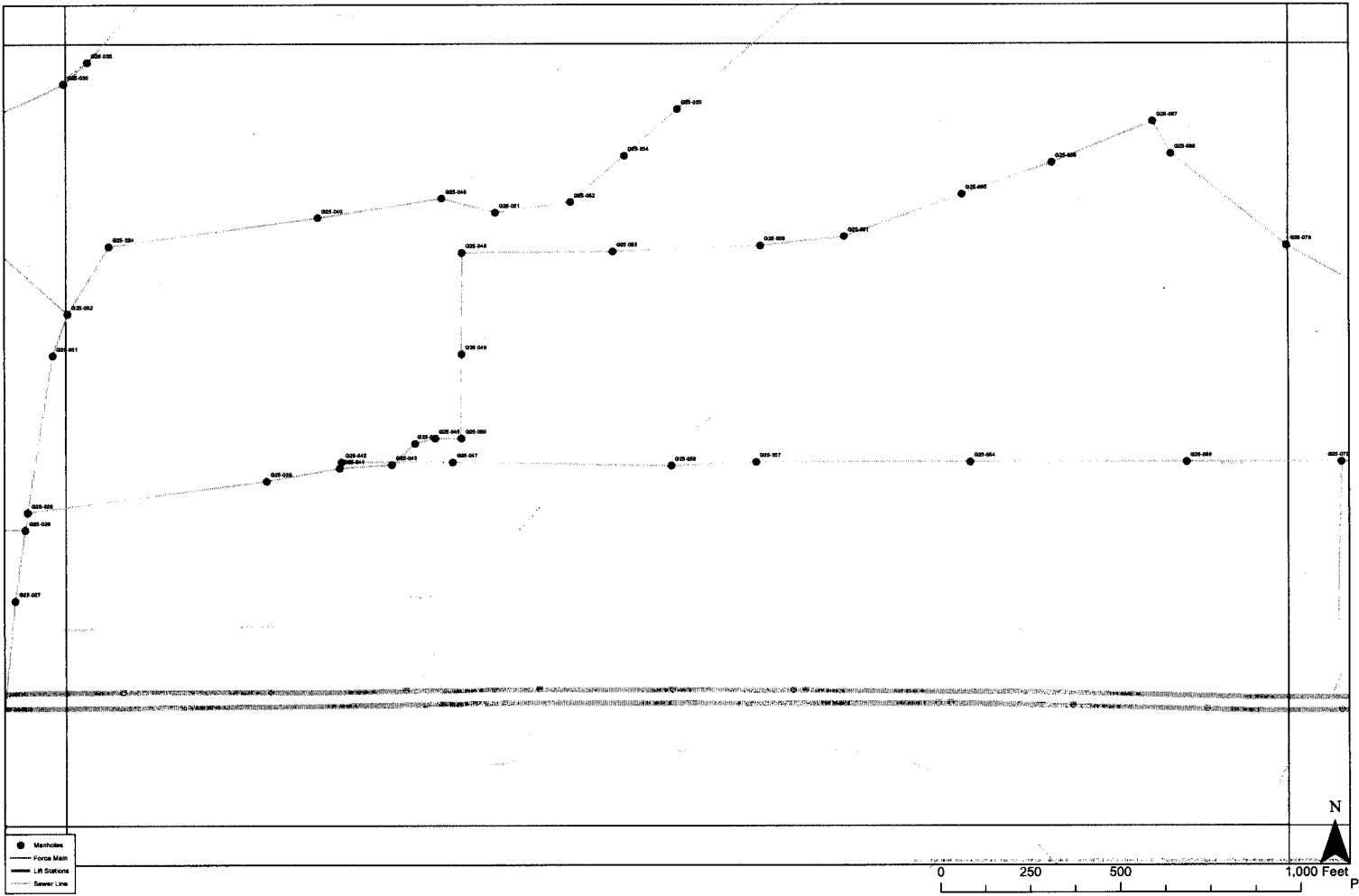


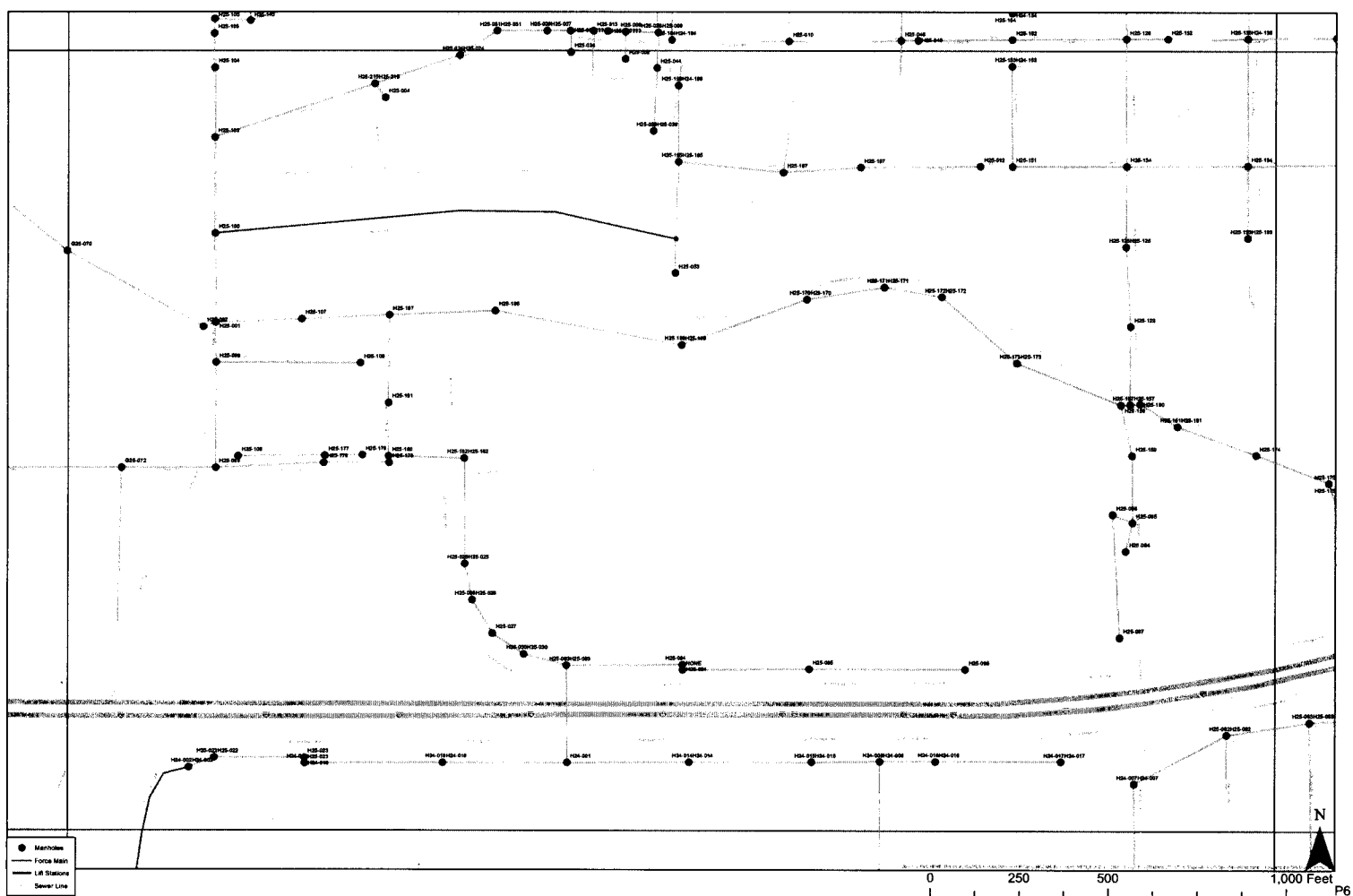


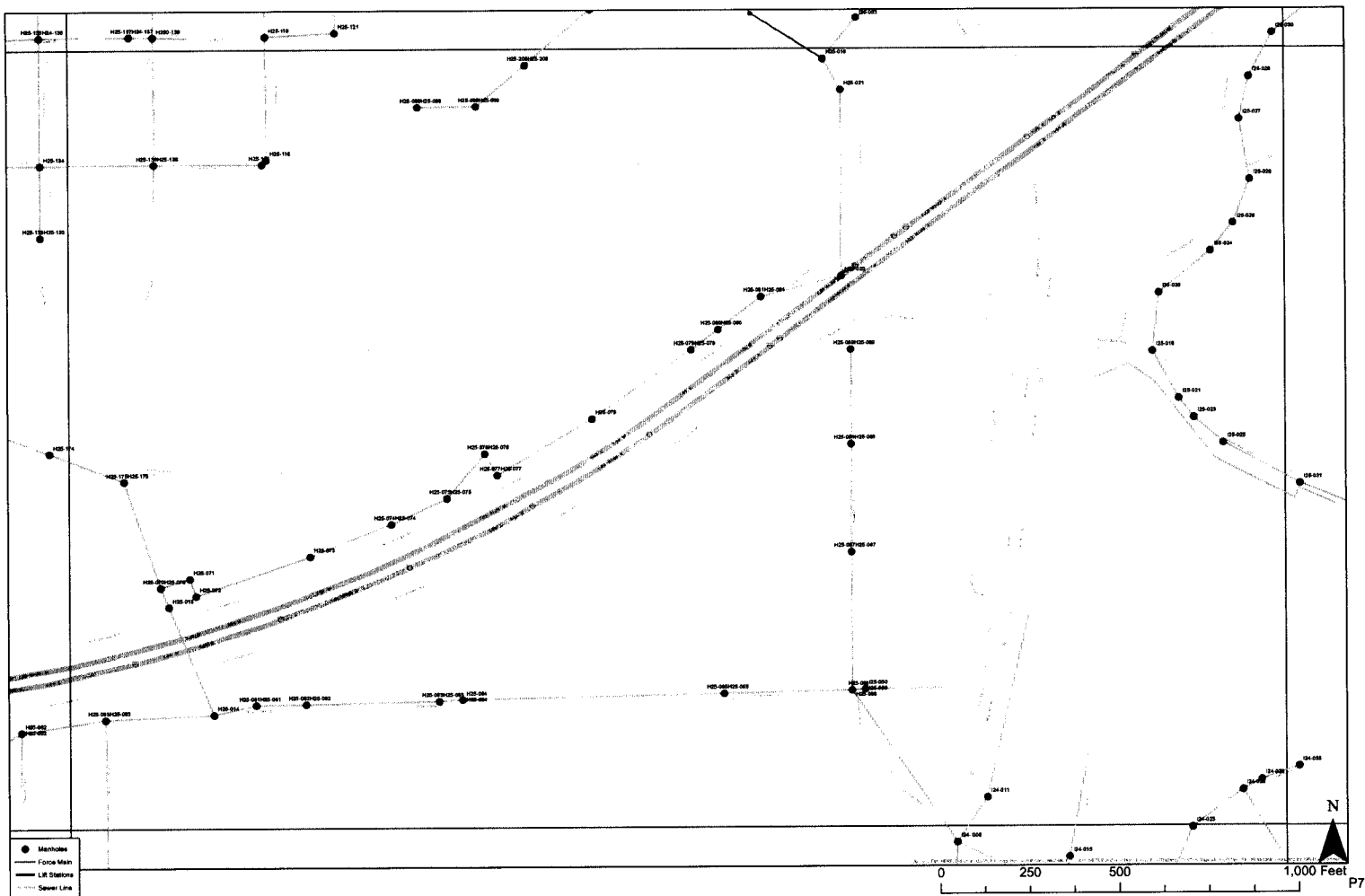


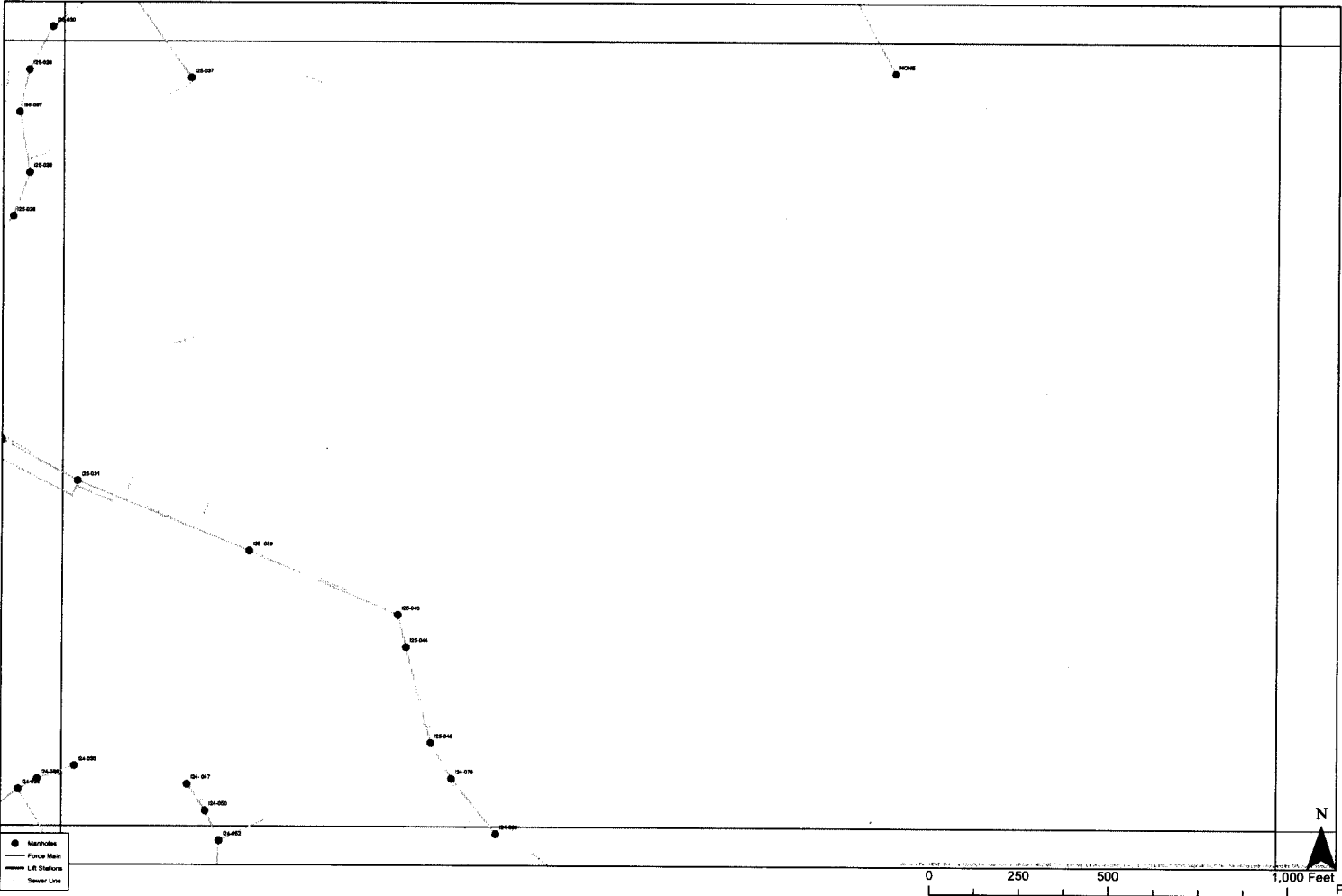


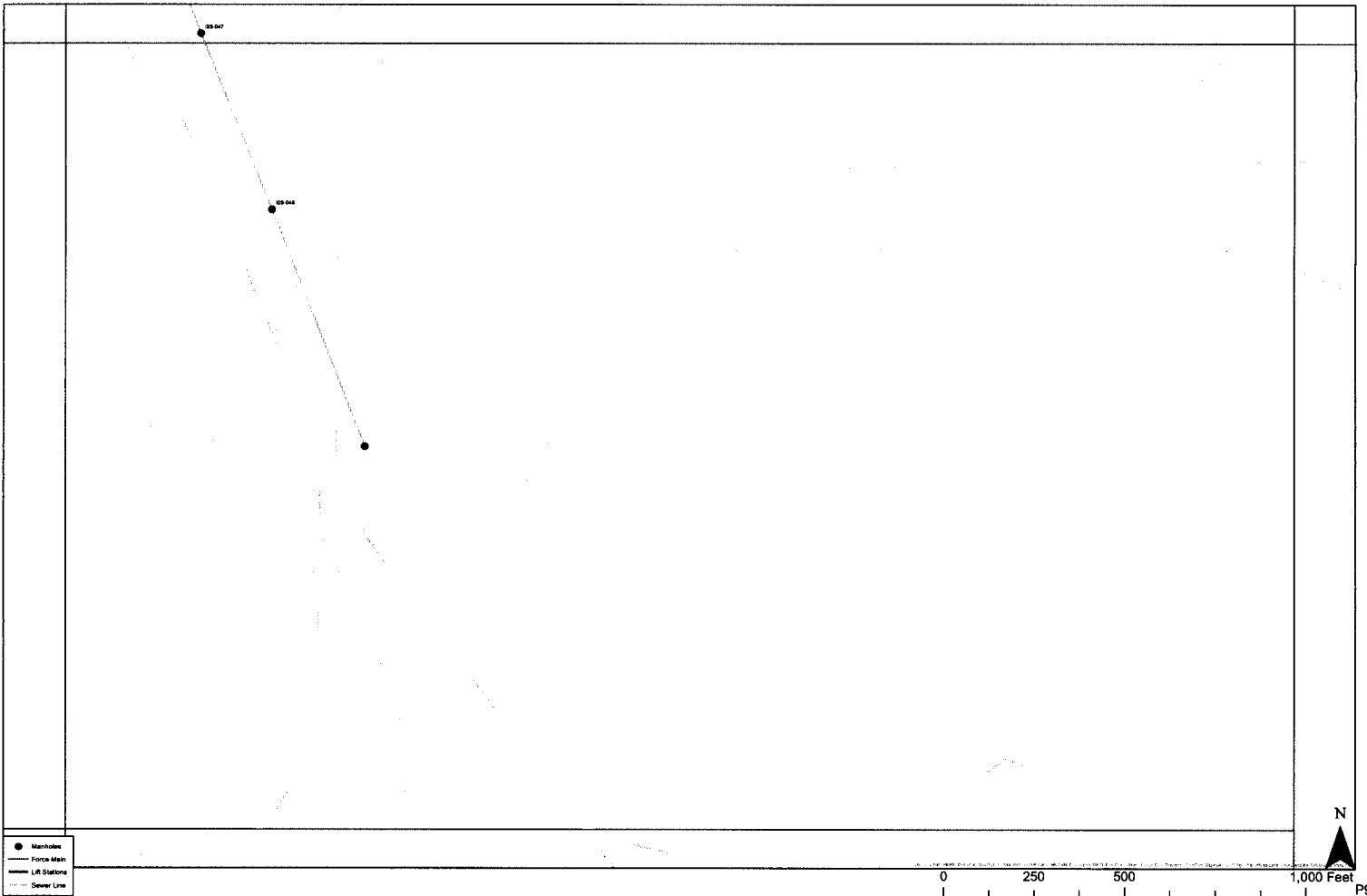


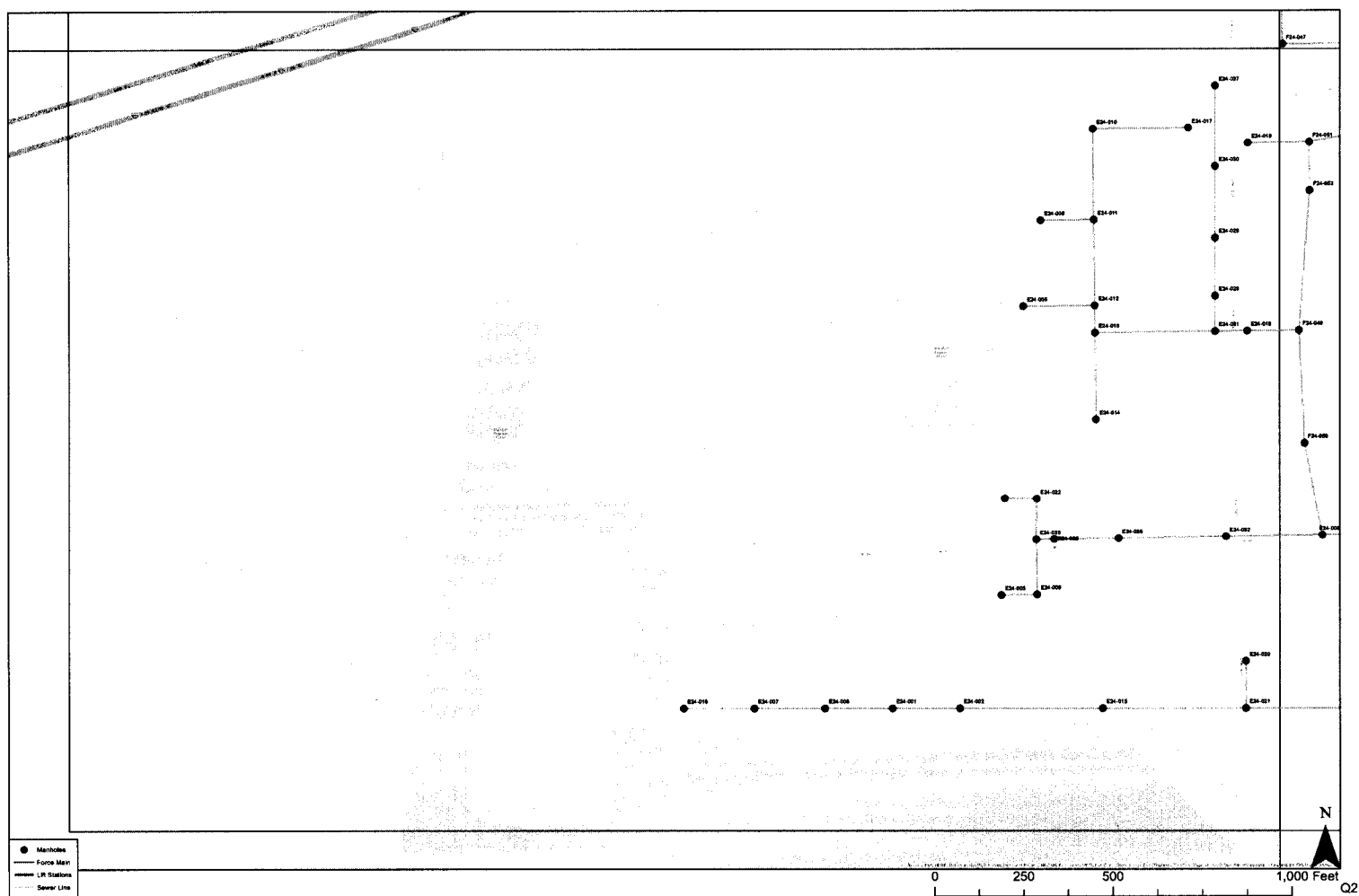


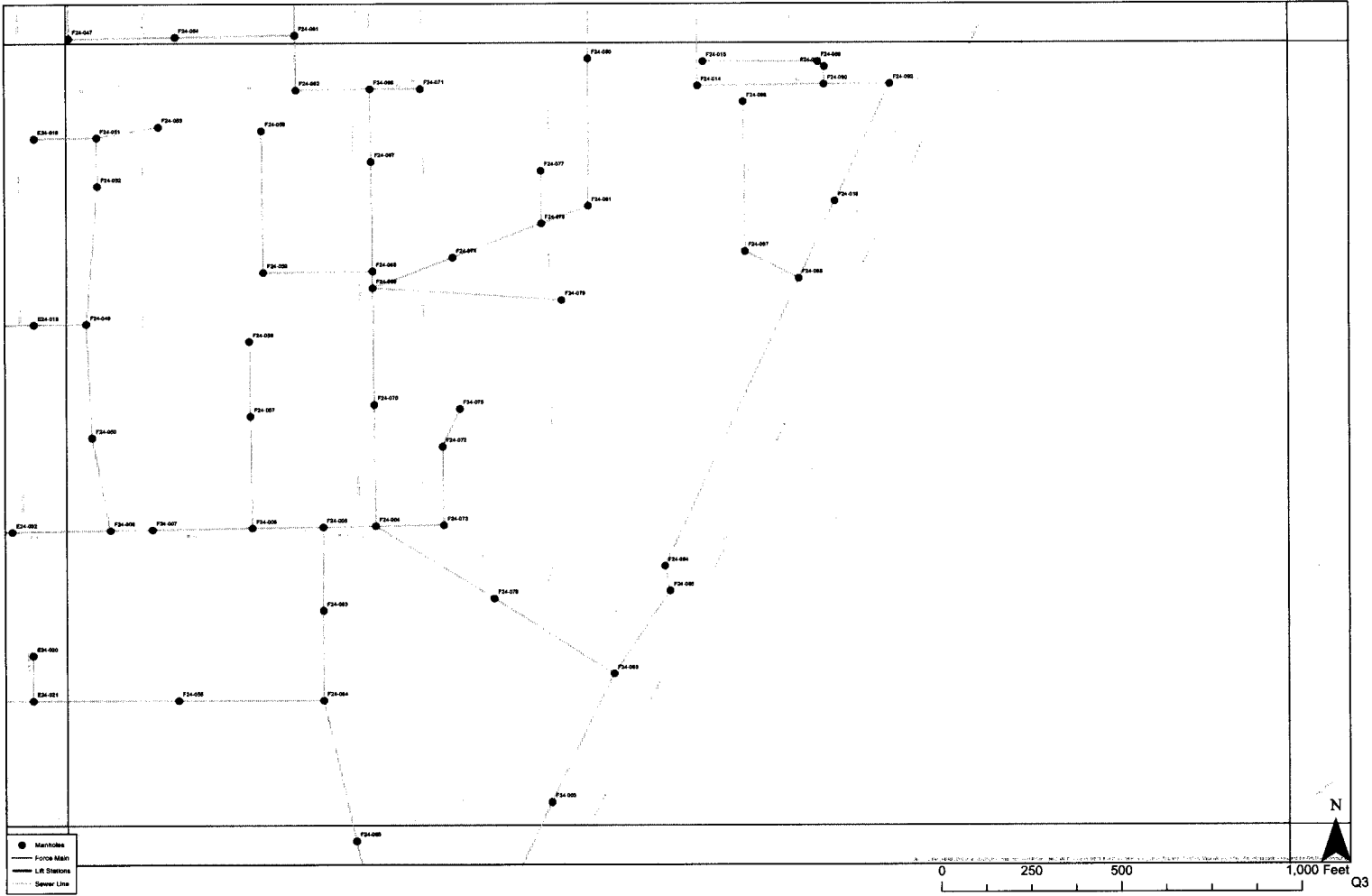


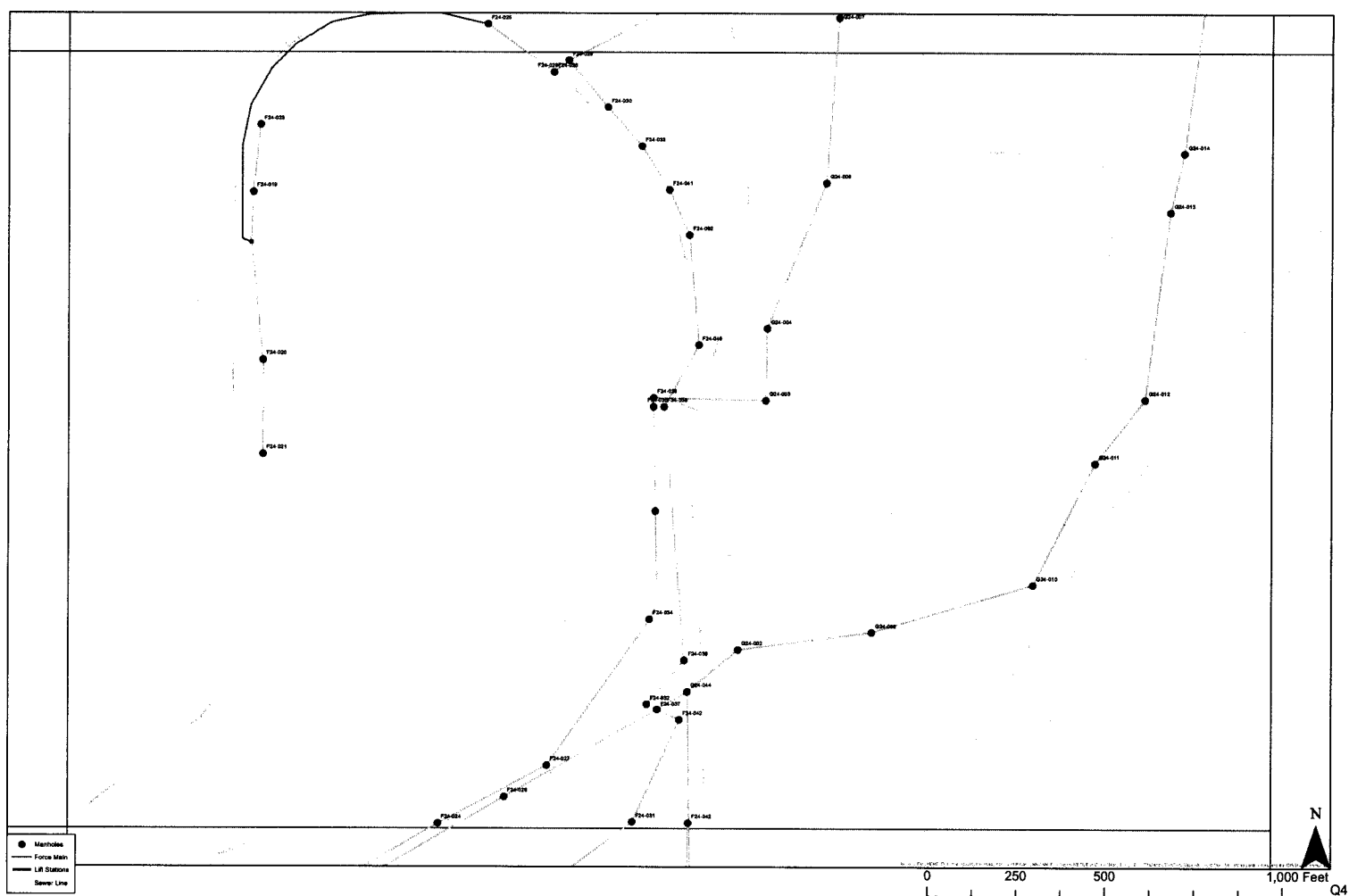


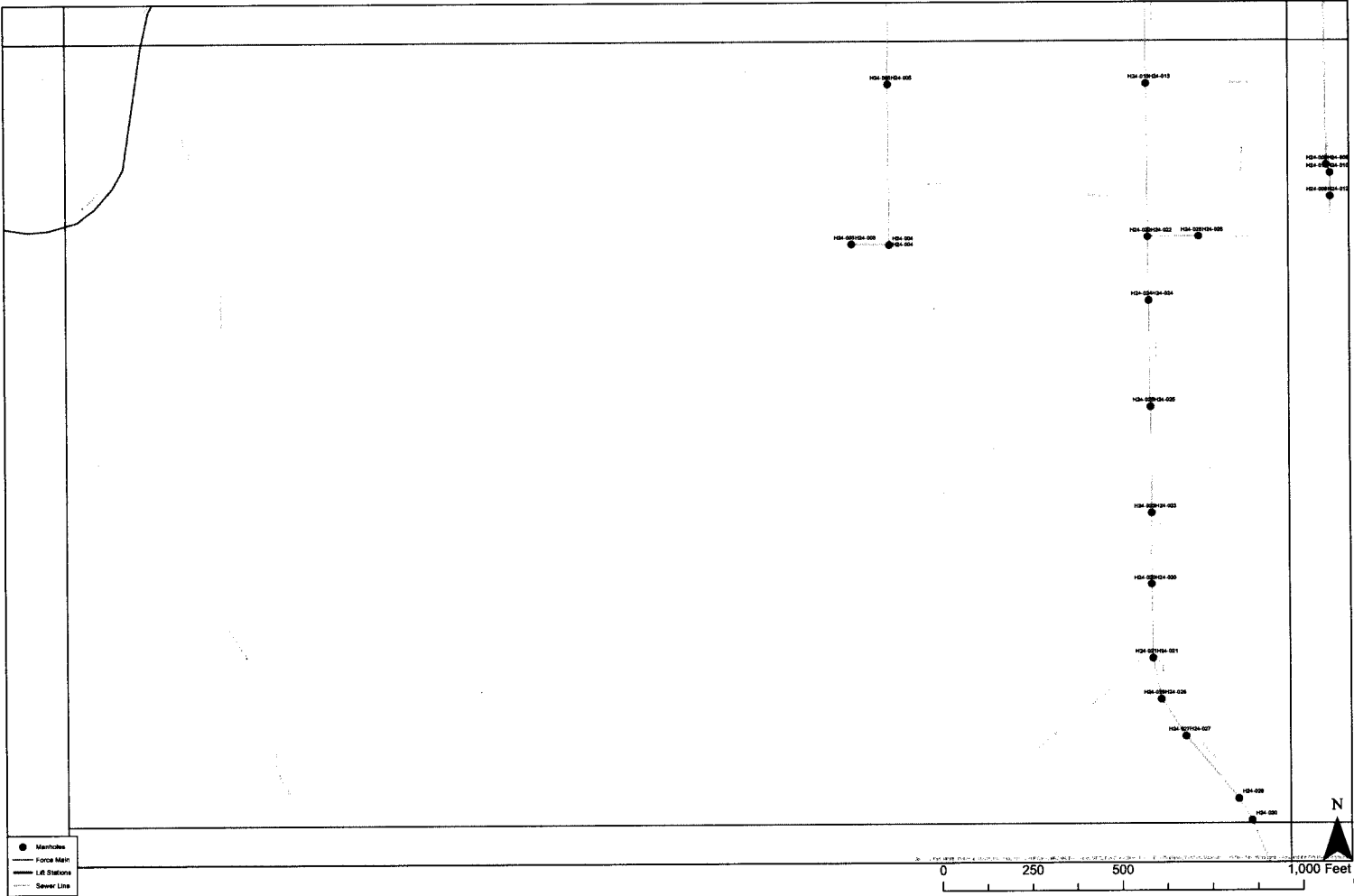


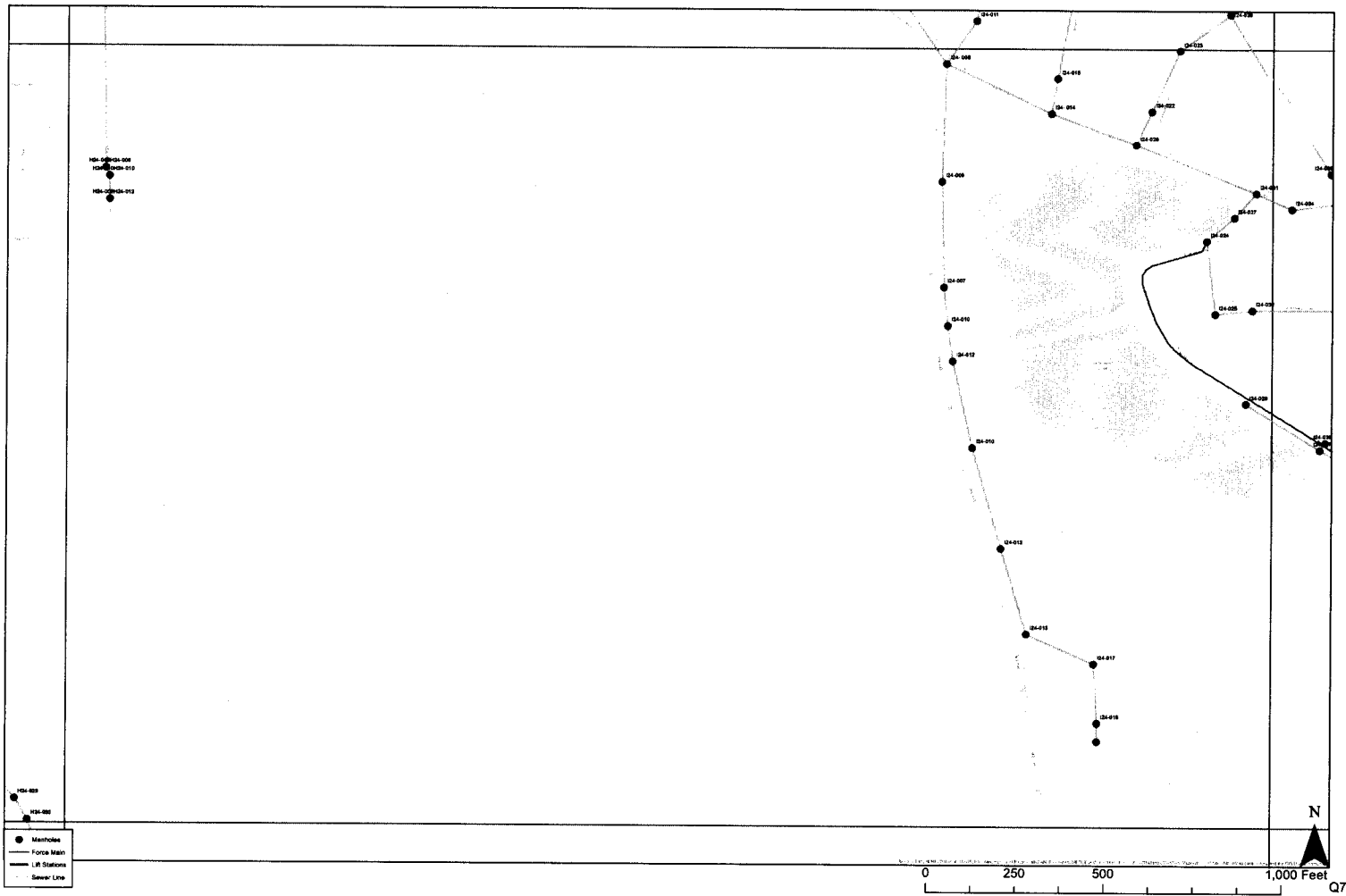


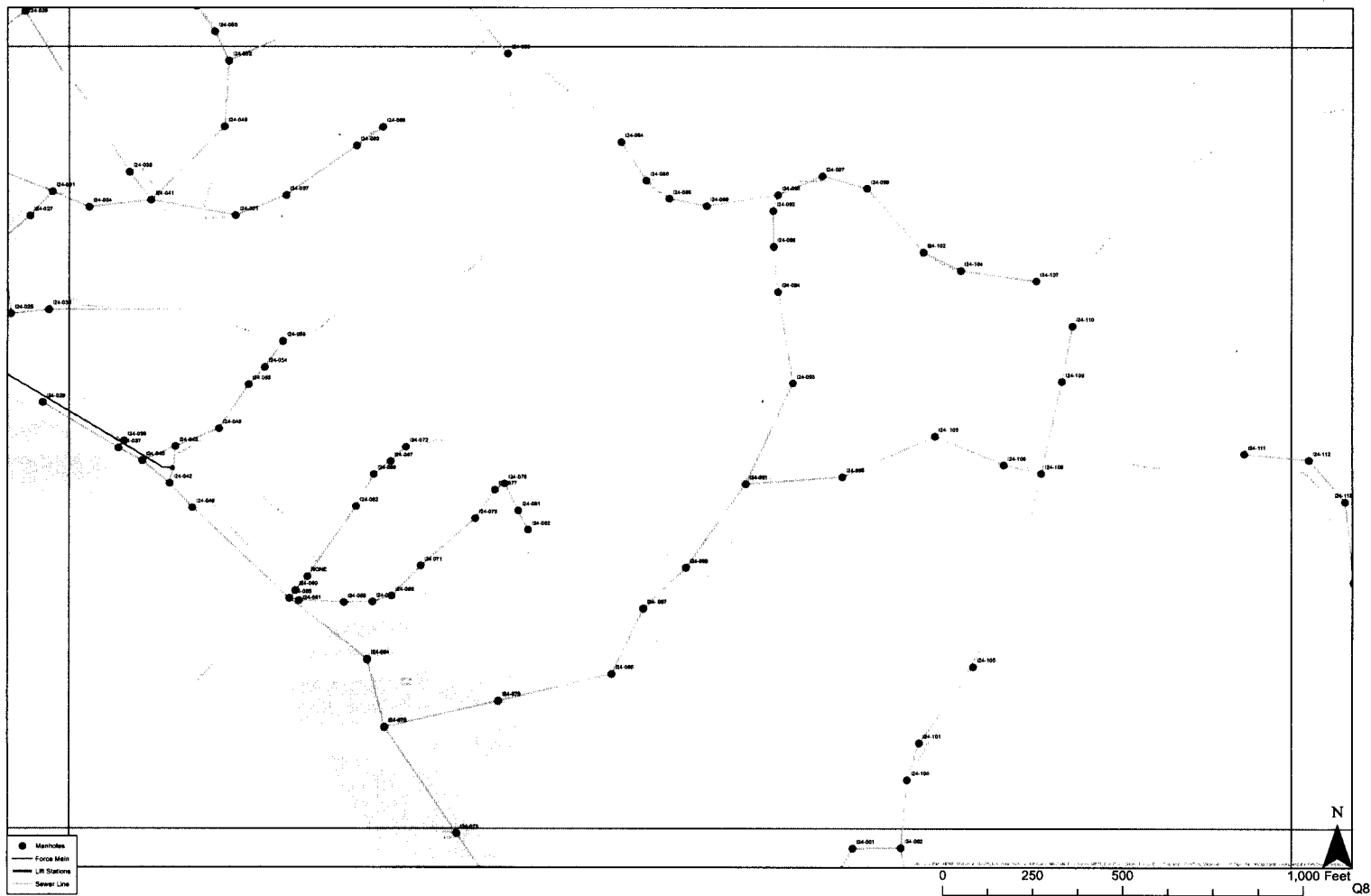


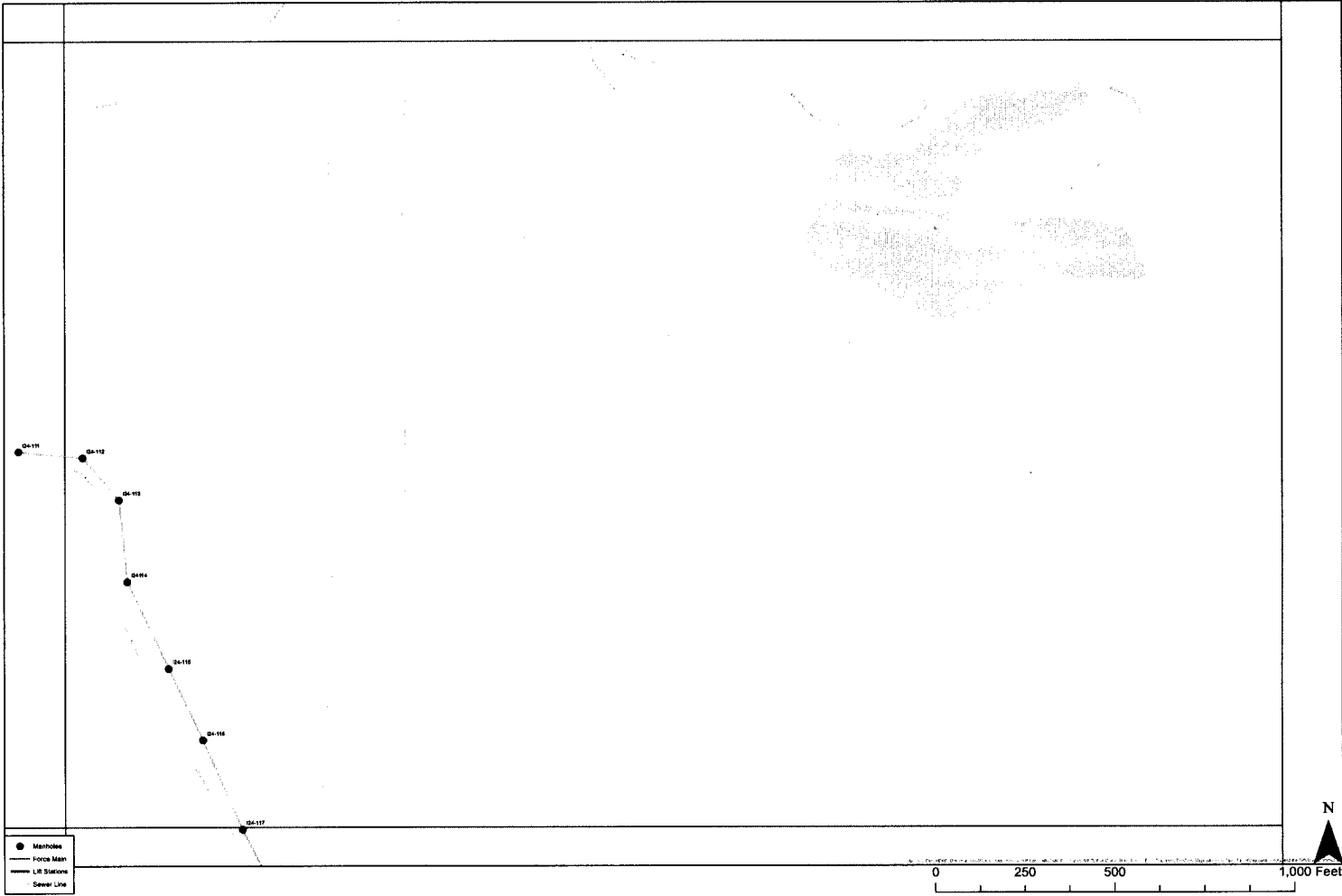


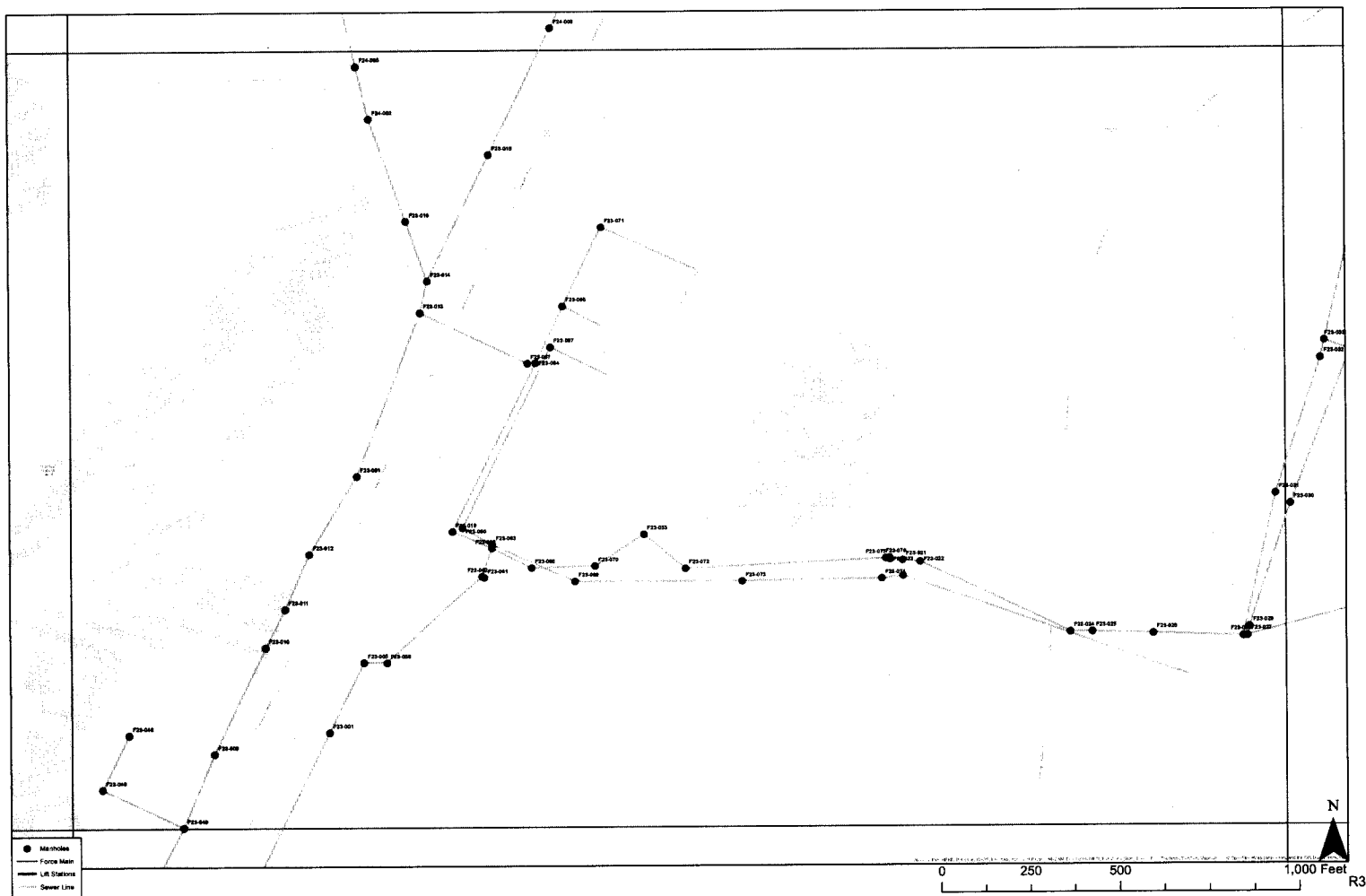


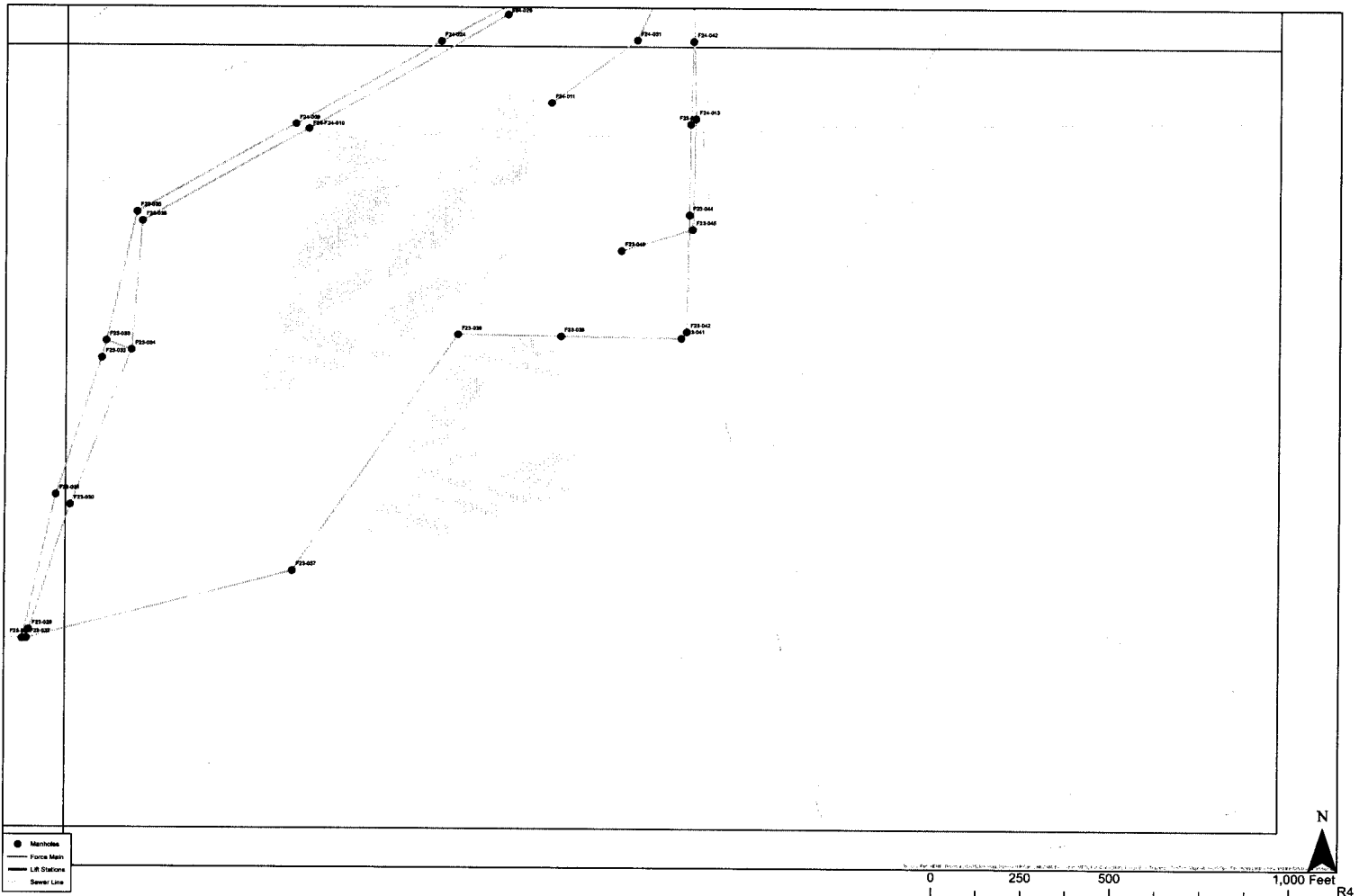






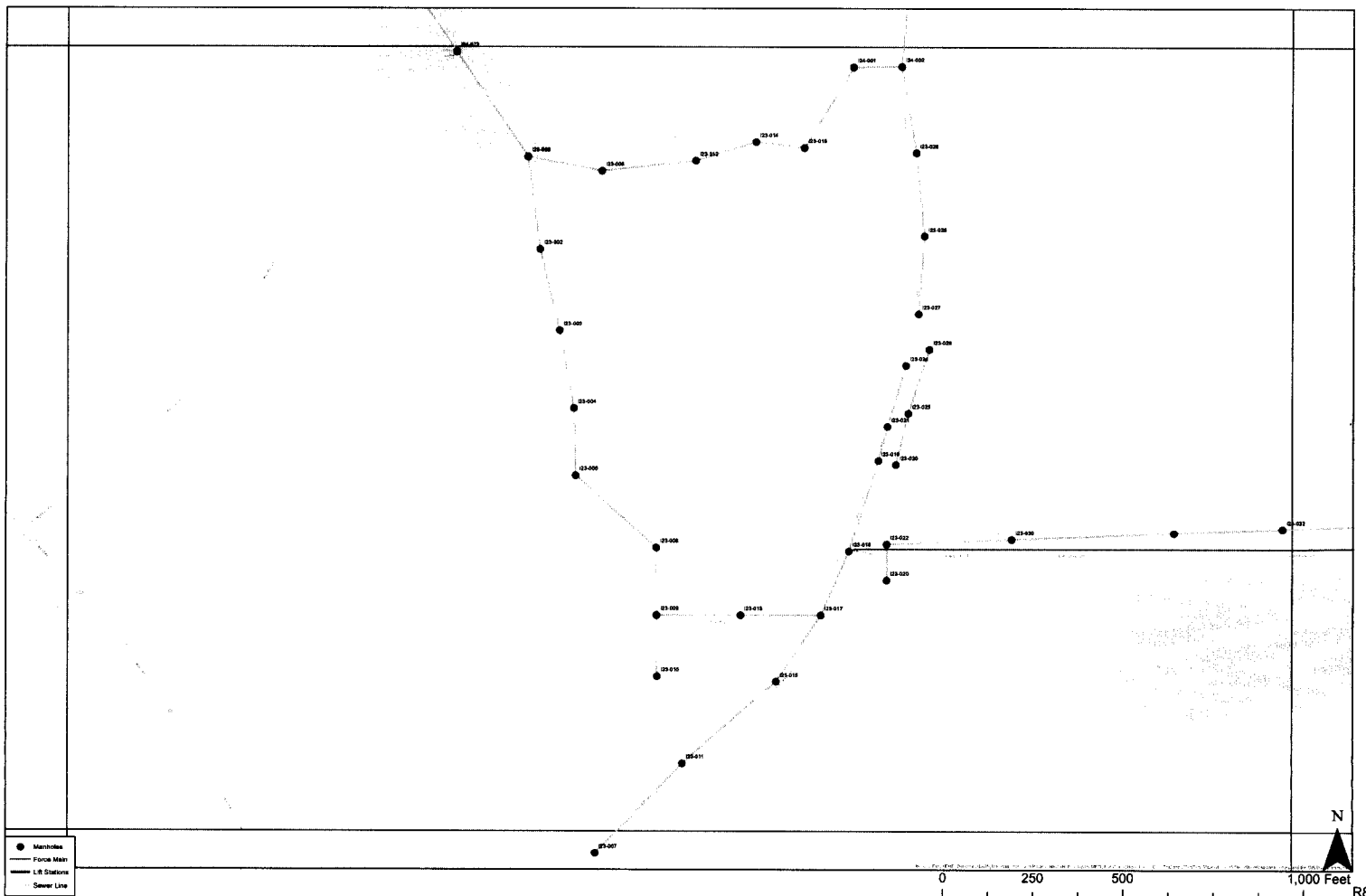


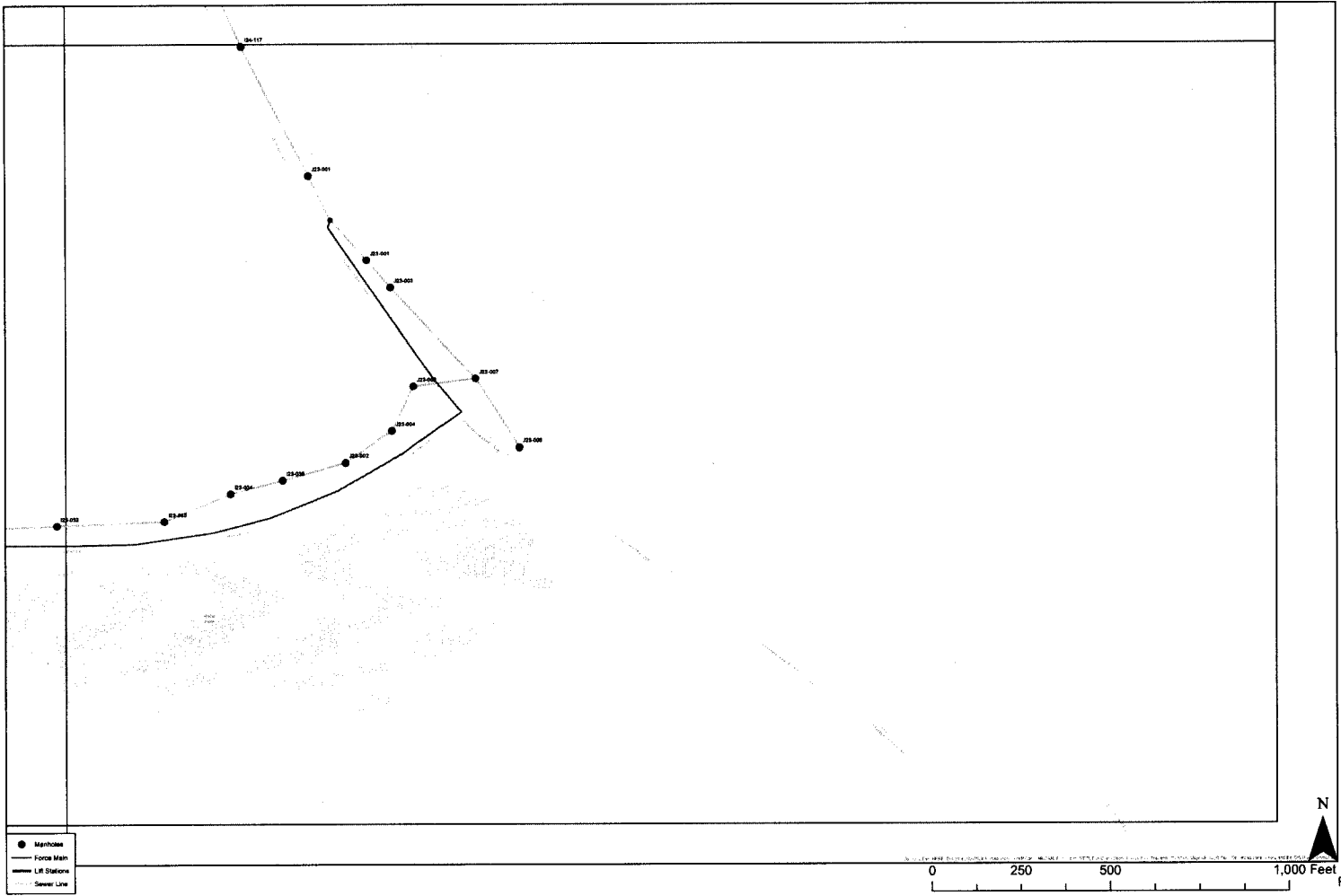


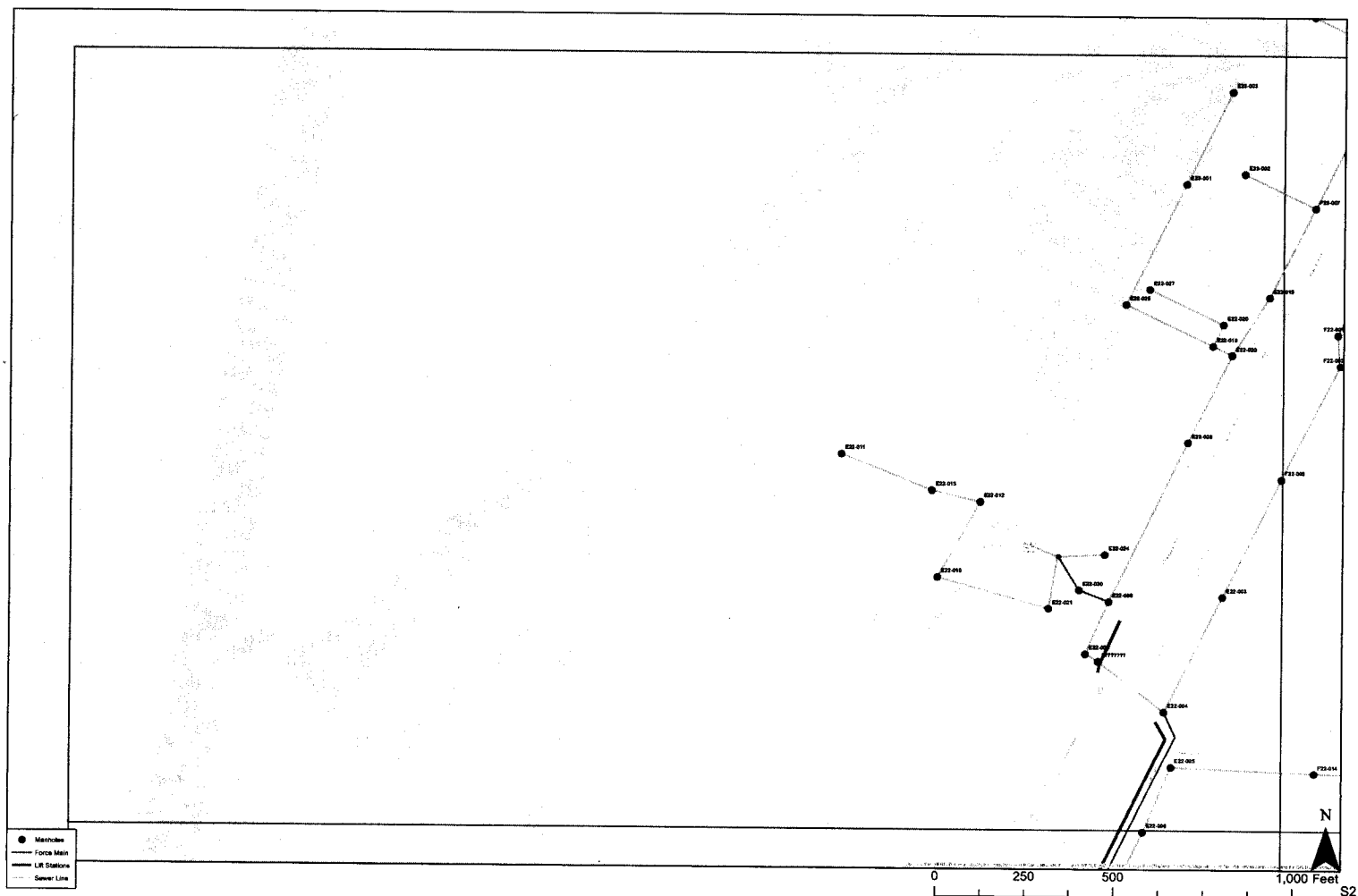


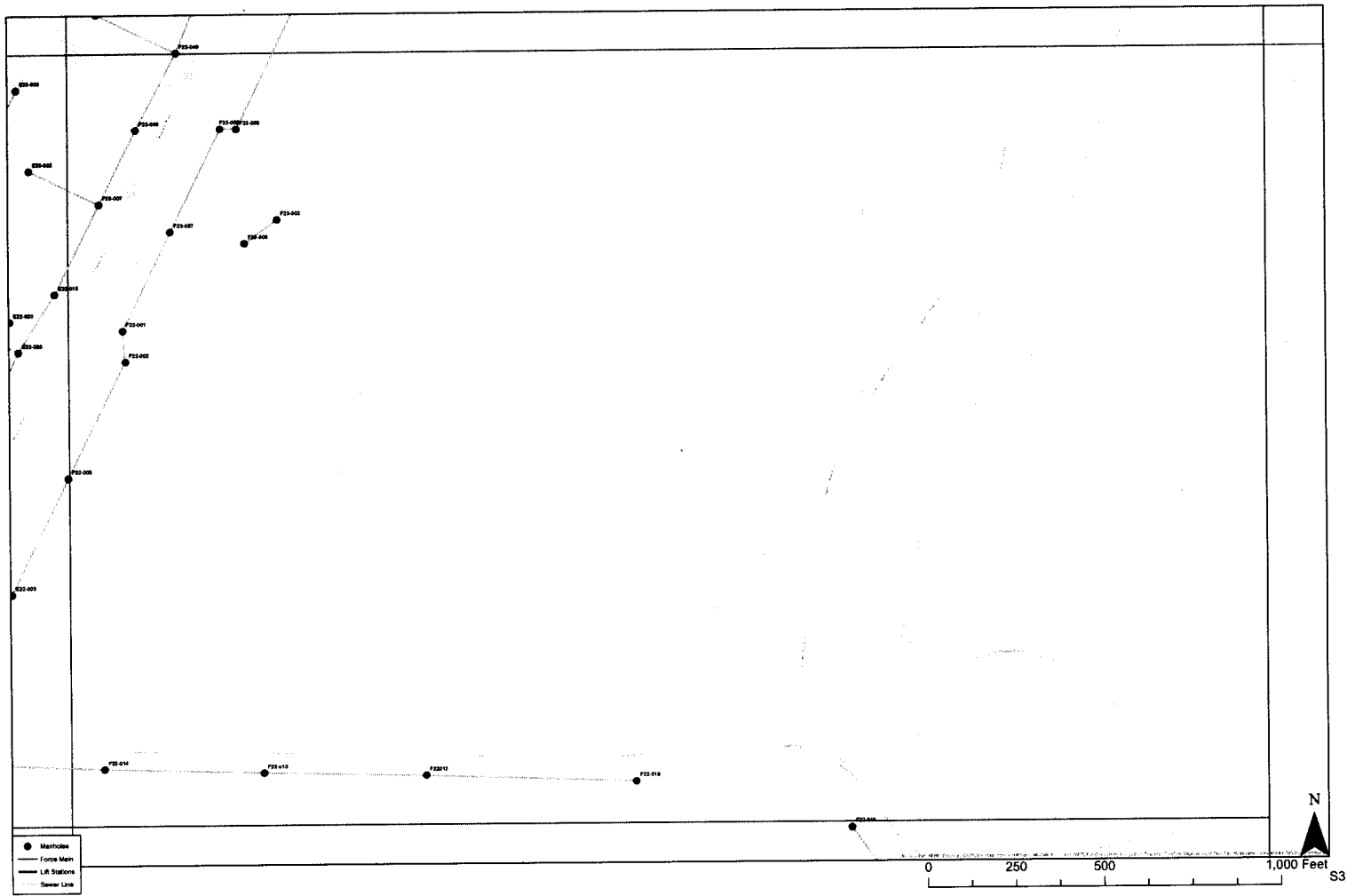


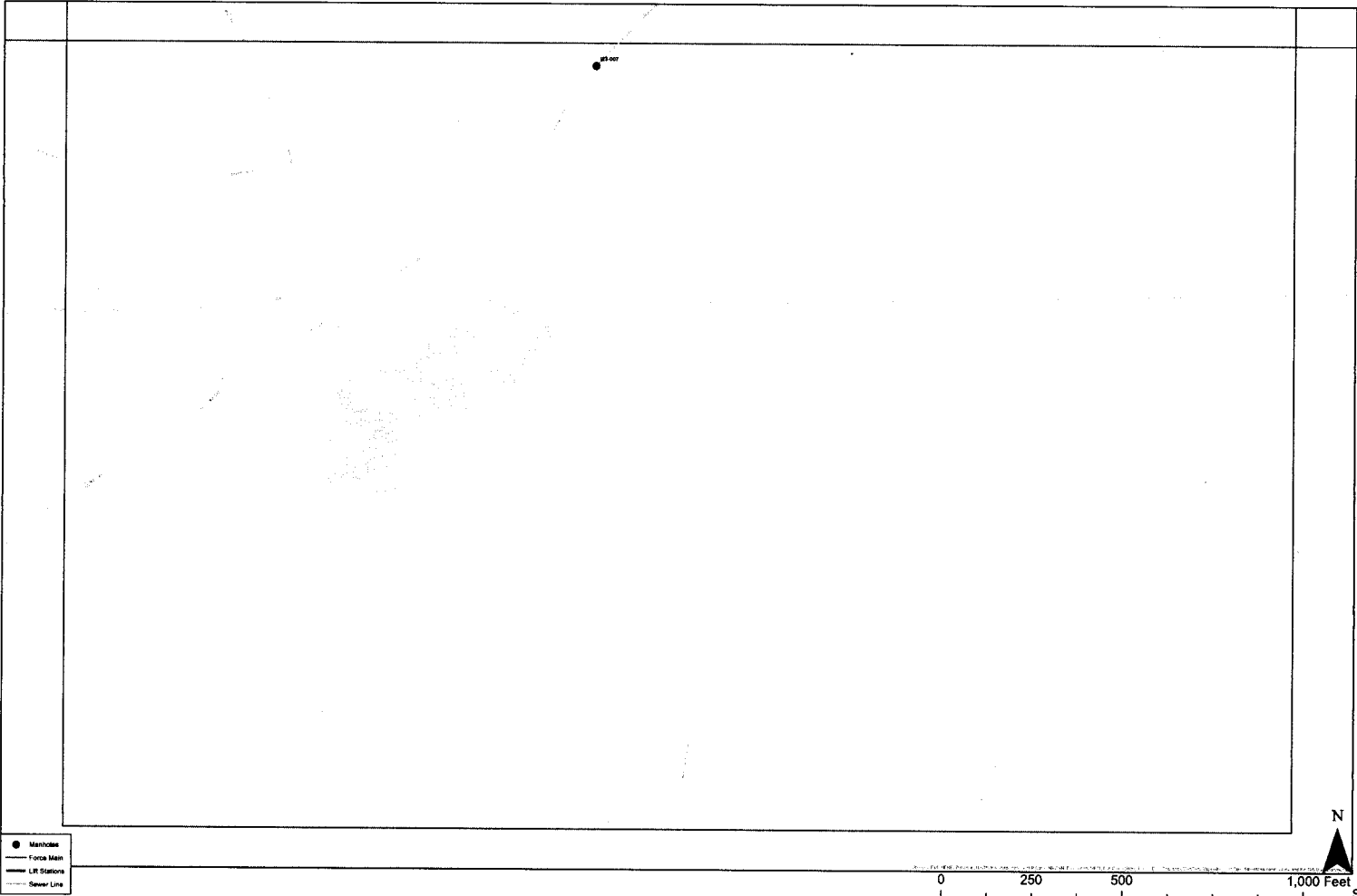










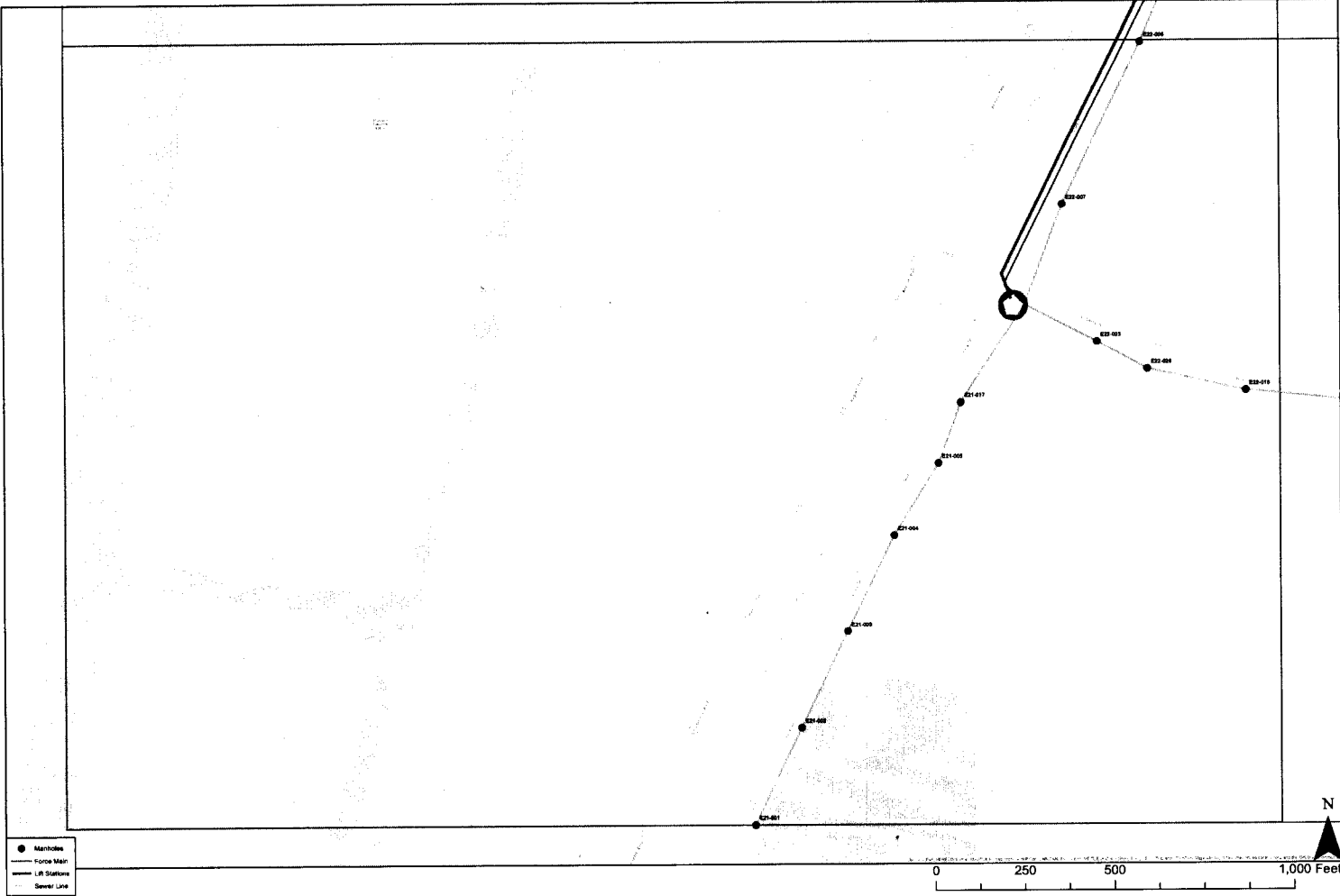


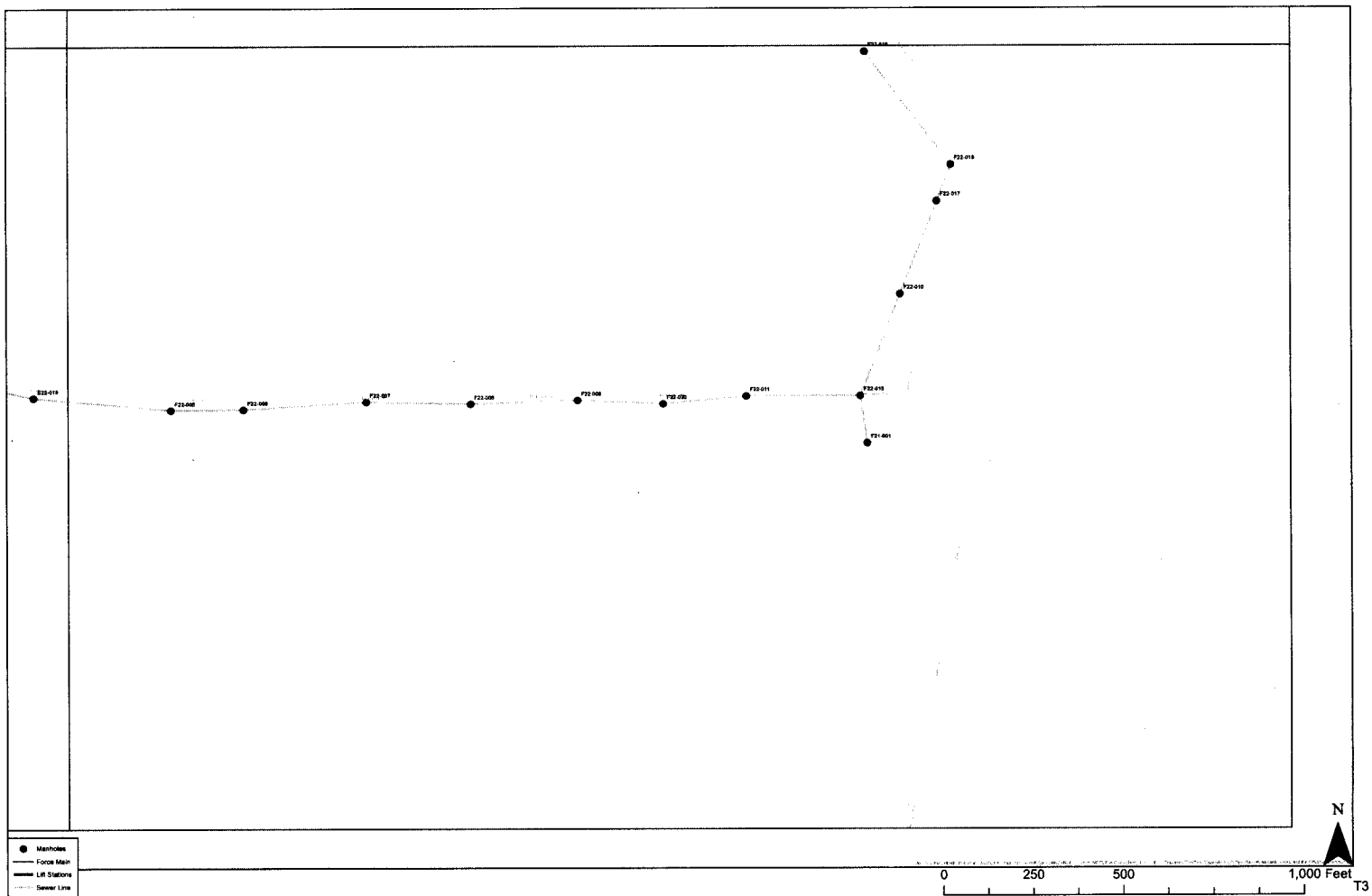
- Manhole
- Force Main
- LRT Station
- Sewer Line

0 250 500 1,000 Feet



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**April 3, 2015 City of Meridian Response to Request for Information**

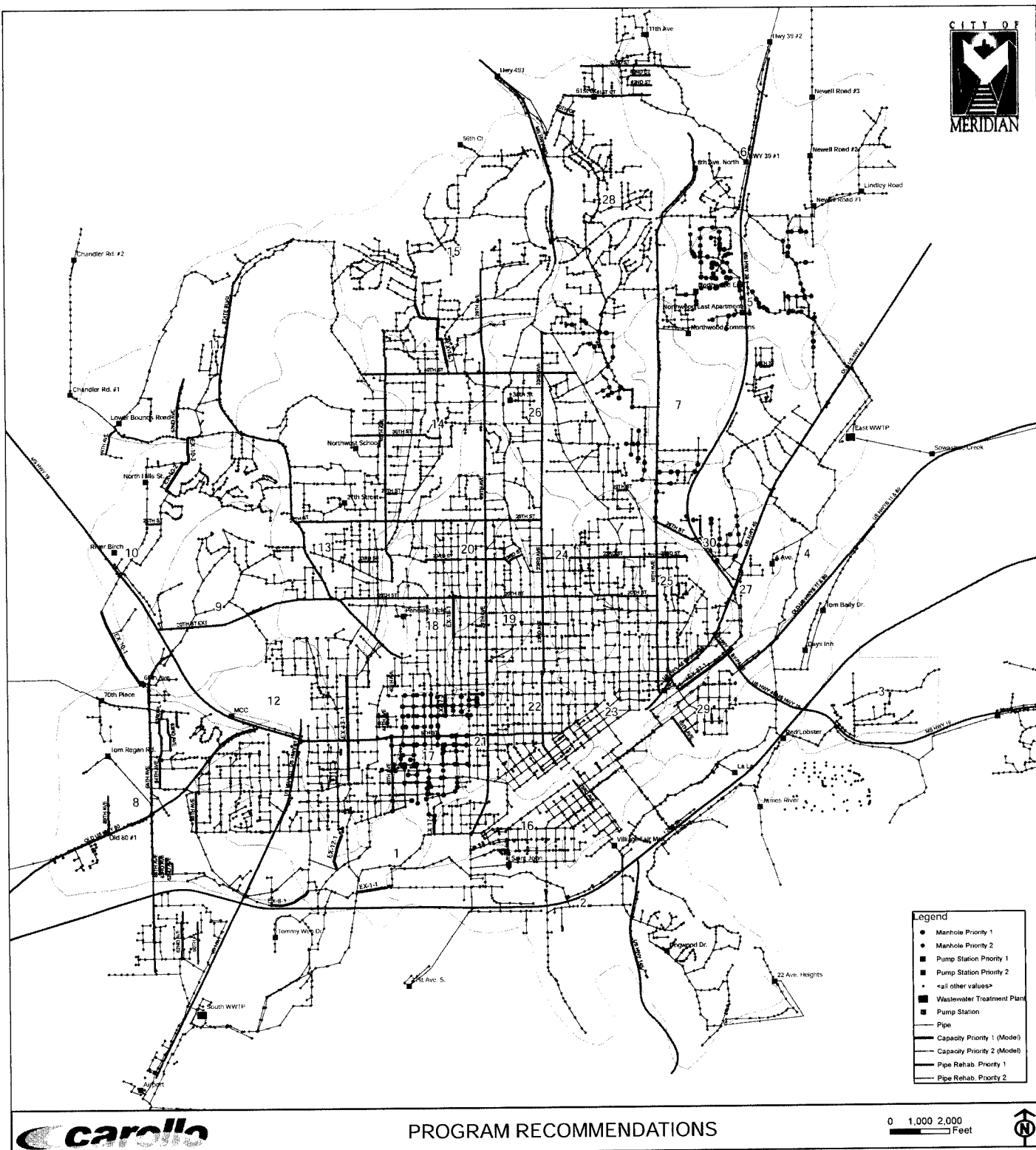
**Attachment D: Electronic Copy of 2010 Report, Appendix E and  
Chapter 4**

**See enclosed disk**

## **Appendix E**

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### **Full Scale (24" x 36") Maps of Model Simulations**



## PROGRAM RECOMMENDATIONS

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## HYDRAULIC EVALUATION OF COLLECTION SYSTEM

The City sewer system has evolved over the years during its increasing development due to the quality of life, recreational access, and educational and medical services. To handle the elevated flows the aging sewer system is in need of selective replacement and rehabilitation.

The purpose of the model is to evaluate the capacity of the existing collection system during peak wet weather flows and to develop improvement recommendations that will provide the City with a reliable and economic wastewater collection system for the future.

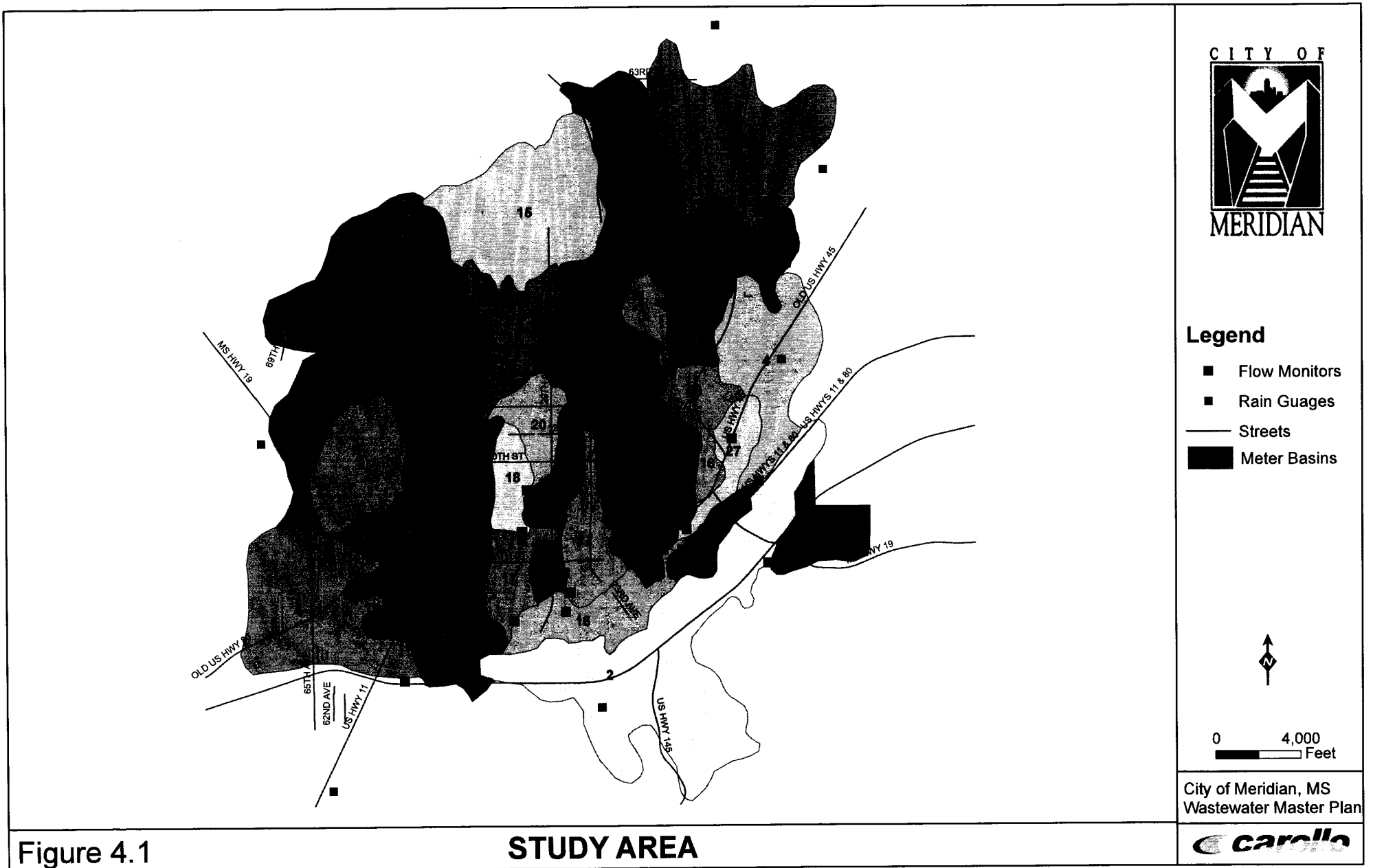
This Chapter describes the City's service area and the physical factors that influence sanitary sewer flows and defines the information and assumptions used to develop the City's collection system hydraulic model. These factors include general background information, flow monitoring activities, hydraulic model development, and pipe capacity analysis.

### 4.1 SERVICE AREA

The City's sanitary sewer collection system conveys wastewater from customers within the boundaries of the City and residential areas adjacent to the City to the wastewater treatment plant. The wastewater treatment plant accepts sanitary flows from about 303 miles of gravity sewers.

In order to perform comprehensive analysis of the collection system, the service area was divided into thirty sewer basins as shown in Figure 4.1.

The sewer system in the service area is aging and in need of selective rehabilitation and replacement to handle the elevated flows from the inflow and infiltration. Wastewater flows during storm events indicate that large volumes of RDII are entering the collection system. These increased flows limit the amount of additional flow that can enter the system and result in a system operating at its peak capacity. Rainfall averages 57 inches per year.



#### **4.1.1 Land Use**

Land use information is an integral component in estimating the amount of wastewater generated within any City. The type of land use in an area will affect the volume of the wastewater generated. Adequately estimating the generation of wastewater from various land use types is important in sizing and evaluating collection system facilities.

The City provided information on existing and future land use within the service area. Existing land use classifications were based on information as defined in the City's Municipal Code. Both the existing and future land use data were provided to Carollo in GIS format. Descriptions of the various land use types are presented in the following sections.

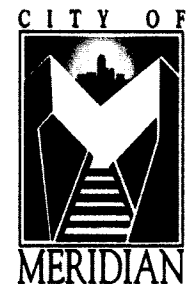
##### **4.1.1.1 Existing Land Use**

Figure 4.2 presents the existing land use classifications within the service area. The distribution of existing land use within the service area in terms of acreage and percentage is presented in Table 4.1. Results from the table show that the City is composed primarily of single family residential land use that average 2 to 4 dwelling units per acre. Single family residential accounts for approximately 30 percent (excluding right of way) of the developed land. High Density Residential units are typically located within the commercial districts and average 6 to 15 dwelling units per acre.

##### **4.1.1.2 Future Land Use**

Future land use includes the projected expansion of the City through inclusion of several areas currently defined and the full build-out of those lands within the City. Therefore the future land use represents the total build out of the service area and not a specific projection year. The number of developed acres for each land use type is presented below for current and future planning scenarios.

Figure 4.3 illustrate the locations of the various land use classifications used in the model for the future scenario. Table 4.1 show the areas associated with the future land use scenarios. Most of the City is zoned for single family residential with pockets of high density residential areas located throughout the City.



#### Legend

- Agricultural
- Central Business
- General Business
- Heavy Industrial
- High Density Residential
- Light Industrial
- Medium Density Residential
- Neighborhood Business
- Professional Business
- Public Use
- Regional Business
- Residential-Business
- Single Family Residential
- Vacant



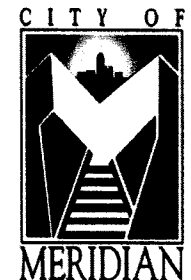
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Feet

City of Meridian, MS  
Wastewater Master Plan



Figure 4.2

## EXISTING LAND USE



**Legend**

- Agricultural
- Central Business
- General Business
- Heavy Industrial
- High Density Residential
- Light Industrial
- Medium Density Residential
- Neighborhood Business
- Professional Business
- Public Use
- Regional Business
- Residential-Business
- Single Family Residential
- Vacant



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City of Meridian, MS  
Wastewater Master Plan



Figure 4.3

**FUTURE LAND USE TYPE**

<b>Table 4.1 Existing and Future Land Uses</b> <b>Wastewater Collection System Rehabilitation Program</b> <b>City of Meridian, MS</b>			
Land Use Type	Area (ac)		Percent Change
	Existing	Future	
Agricultural	50	3,040	5,980
Single Family Residential	3,931	9,072	131
Medium Density Residential	565	618	9
High Density Residential	30	779	2,497
Central Business	375	189	-50
General Business	569	1,011	78
Neighborhood Business	178	498	180
Professional Business	72	103	43
Regional Business	429	1,811	322
Residential Business	35	52	49
Heavy Industrial	318	1,364	329
Light Industrial	339	1,525	350
Public Use	852	5,654	564
Vacant	5,162	2	-100
<b>Total</b>	<b>12,905</b>	<b>25,718</b>	<b>-</b>
Percent change: (future land area minus existing land use area) times 100 divided by existing land use area			

## **4.2 NETWORK MODEL DEVELOPMENT**

In general, collection system models can assess the current level of performance for the collection system based on population and land use. Also, collection system models can perform “what if” scenarios to project the performance of future developments or population and land use changes. XP-SWMM and InfoWorks software were used to model the City’s collection system.

The collection system model includes the City’s pipelines with diameters of ten inches or greater, all associated manholes, diversion structures, and two pump stations. GIS data provided by the City was entered into the hydraulic model. This data includes pipe length, diameters, invert elevations, and rim elevations.

The City’s service area was divided into sub basins for both existing and future conditions. Each sub basin has an associated amount of residential and commercial flow that enters the collection system through a pipe within or close to the sub basin. The residential and commercial flows were determined from the land use flow rates taken from the City’s Municipal Code and General Plan.

Model calibration is a crucial component of the hydraulic modeling effort. Calibrating the model to known flow metering data is to ensure the most accurate results possible. The calibration process consists of calibrating to both dry and wet weather flow events. Dry weather flow calibration ensures an accurate depiction of base flow generated within the study area, based on population estimates and land use. The wet weather flow calibration consists of calibrating the hydraulic model to a specific storm event to quantify the peak and volume of inflow and infiltration into the collection system. The flows measured from 04/13/2006 through 04/19/2006 were averaged to provide typical dry weather flow conditions to calibrate the model during dry weather flow. For wet weather conditions, the hydraulic model was calibrated to the storm events occurring on March 20, 2006, April 21, 2006 and April 30, 2006.

The calibration process compares the flow metering data with the model output. Comparisons are made for minimum, maximum and average flows as well as the temporal distribution of flow. The dry and wet weather flows injected into the model are calibrated to each flow meter and its tributary pipes in order to match the peak and volume of the flow monitoring data chosen for calibration. Wet weather flow calibration also entails adjusting inflow and infiltration parameters within the model to match the flow monitoring data for each meter during the wet weather rainfall event.

The City’s sewer collection system was modeled to determine if the current collection system capacity is sufficient for existing conditions and future growth. The model calculates sanitary sewer system flows for existing and future conditions based on land use, population and RDII, and compares the flows to the capacity of each modeled pipe in the system. Pipe segments whose calculated capacity is less than their predicted peak flow are identified in this report as “deficient” or “inadequate”.

To keep the amount of input data manageable and to focus on the primary wastewater transmission and interceptor lines, the model considered only pipelines 10 inches or more in diameter. Some 8-inch diameter pipelines critical to the evaluation of certain collection system areas were added to the model as needed. The modeled system is shown on Figure 4.4. The modeled system consists of approximately 65 miles of pipeline.

## **4.2.1 Collection System Model**

The hydraulic model was developed by importing network components directly from the City's GIS coverage's. The extents of the hydraulic model are shown in Figure 4.4. Only the major segments of the piped system were included in the model, which includes approximately 1,025 MHs, 1,440 pipe segments, and 2 pump stations. Lift station capacity, number of pumps, and pump on and off levels were obtained from available design documents.

### **4.2.1.1 Model Input Data**

The basic information required to develop the hydraulic model can be grouped into two categories; sewer physical data and flow input data. The sewer physical data includes sewer size, sewer invert elevation at manholes, manhole top elevation, location of manholes and roughness of sewer pipe. These data were obtained using sewer maintenance records supplemented by as-built drawings and the City sewer map. Where critical data was missing, field surveys were conducted.

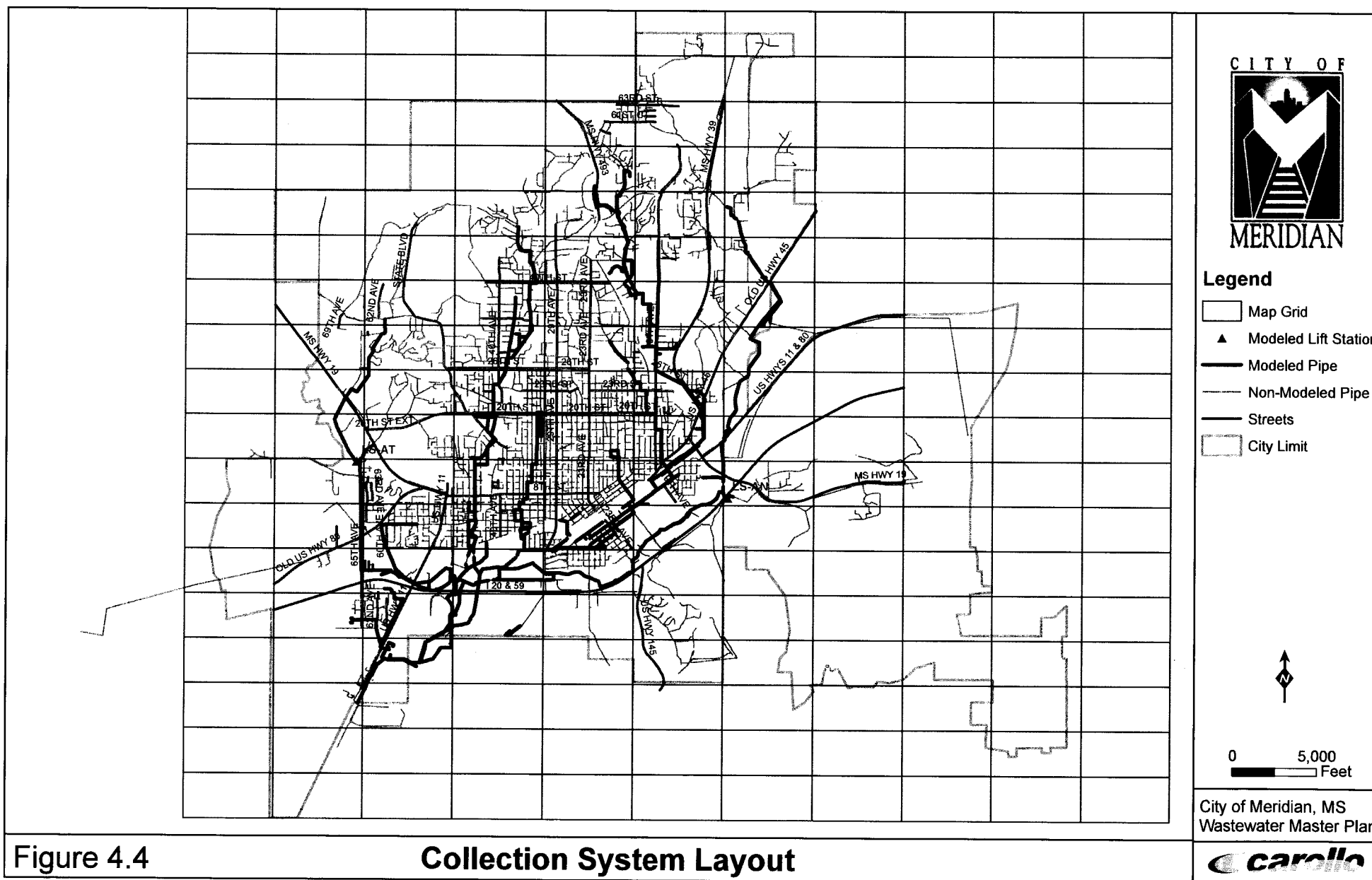
#### **4.2.1.1.1 *Pipe Roughness***

A primary factor affecting a pipe's capacity is the roughness of its interior surface. Empirical testing over many years has established a series of roughness coefficients to characterize the relative smoothness of different types of piping. One such coefficient, called Manning's n-value, was incorporated into pipe capacity formulas for the computer model. The Manning's n-values in the model range from 0.014 to 0.018.

#### **4.2.1.1.2 *Sub Basins and Model Loads***

Wastewater inflows used in the model were based on the City's existing land use and zoning maps, flow monitoring results and model calibration. Sub basins provide a method to estimate and apply loads to the collection system model. Each sub basin represents a defined area in which all businesses and residents apply loads to the system. Based on existing sanitary sewer alignments, sub basins were established throughout the service area. Loads were applied to the model at sub basin loading point.

A total of 188 sub basins and 174 load points were established to provide an estimate of a service area for each sewer line under existing conditions. The existing sub basins were modified to account for potential growth areas to derive the future sub basins.



### **4.2.2 Model Analysis Tools**

Various modeling tools are needed to address a wide variety of modeling objectives. These objectives require different levels of detail and the ability to model the system performance over a wide range of time periods. Because of the spatial detail required and the time scales of interest, the conveyance system modeling has two main components:

- Sub basin flow generation model; developed using XP-SWMM software.
- Dynamic hydraulic model of the conveyance system; developed using InfoWorks software.

The XP-SWMM model software was used to develop the runoff model, which generates the Dry Weather Flow (DWF) for each sub basin. The program also computes the RDII components and adds these to the DWF to create sub basin wastewater hydrographs for the InfoWorks hydraulic model. InfoWorks then routes the sub basin wastewater hydrographs through the conveyance system to the wastewater treatment plant. The model also simulates the pump station operations as well as sanitary sewer overflow (SSO) discharges.

## **4.3 FLOW MONITORING**

Sanitary sewer model flows for the City were derived from flow monitoring results. Flow monitoring is a critical part of any comprehensive collection system modeling effort. The flow monitoring data is necessary to correlate projected flow estimates, based on land use (and/or population projections) and flow factors, with actual or “real world” collection system flows, and make necessary flow adjustments in the hydraulic model. The flow monitoring program provided vital information on how the City’s collection system behaves under various loading conditions.

Pipeline Analysis, LLC (PA) conducted the flow monitoring program. PA installed twenty-nine flowmeters and nine rain gauges for the period between March 2006 and May 2006. The twenty-nine flowmeters were located to monitor isolated flow emanating from each of the basins monitored. The locations of the flowmeters are presented in Figure 4.1. The flow monitoring sites were selected to provide flow data in critical sewer sections throughout the service area. Flow monitoring sites need to be readily accessible, and the flow stream should approximate a fairly quiescent sub-critical flow situation.

The flow monitoring results were adequate for model calibration and characterization of the system RDII response under average wet-weather conditions. However, the flow monitors did not capture any extreme storm events. Extreme rainfall events are those that have a 5-year or greater return frequency.

The flow meters defining flow from each basin are presented in Table 4.2. In the table, the Cumulative Flow is the average volume recorded at the meter site and the “Discrete Flow” is the “Cumulative Flow” volume less the flow contribution from up stream meter basins. The table indicates that DWF production per unit area is highest in Basin 29, which generates approximately 2,000 gpd/ac. Basin 30 generates the least DWF per acre of land.

**Table 4.2 Summary of Flow Monitoring Results  
Wastewater Collection System Rehabilitation Program  
City of Meridian, MS**

Basin ID	Up Stream Meter Basins	Dry Weather Flow <sup>(1)</sup> (mgd) <sup>(2)</sup>		Basin DWF Rate (gpd/ac)
		Cumulative	Discrete	
2	FM 3 & FM 4	1.39	1.00	563
3	None	0.07	0.07	232
4	FM 5	0.32	0.10	151
5	FM 6	0.22	0.04	86
6	None	0.18	0.18	179
7	None	0.02	0.02	73
8	FM 9 & FM 10	0.88	0.53	574
9	None	0.07	0.07	141
10	FM 11	0.28	0.22	382
11	None	0.06	0.06	74
12	None	0.27	0.27	866
13	FM 14	0.96	0.00	0
14	FM 15	1.06	0.64	1,525
15	FM 15	0.42	0.42	426
16	FM 17, FM 29, FM 27, FM 25, FM 23 & FM 21	2.41	0.44	970
17	FM 19 & FM 18	0.51	0.29	1,316
18	None	0.04	0.04	228
19	FM 20	0.18	0.13	622
20	None	0.06	0.05	226
21	FM 22	0.22	0.06	569
22	None	0.16	0.16	538
23	FM 24	0.30	0.09	284
24	None	0.21	0.21	606

<b>Table 4.2      Summary of Flow Monitoring Results</b> <b>Wastewater Collection System Rehabilitation Program</b> <b>City of Meridian, MS</b>				
Basin ID	Up Stream Meter Basins	Dry Weather Flow <sup>(1)</sup> (mgd) <sup>(2)</sup>		Basin DWF Rate (gpd/ac)
		Cumulative	Discrete	
25	FM 26	0.33	0.24	758
26	FM 26	0.09	0.09	168
27	FM 27, FM 7 & FM 30	0.26	0.06	302
28	FM 28	0.11	0.11	148
29	FM 29	0.35	0.35	1,977
30	FM 30 & FM 28	0.18	0.07	221
<b>Total</b>		<b>-</b>	<b>6.01</b>	
<sup>(1)</sup> DWF = Dry Weather Flow based on average of April 13 through April 19, 2006 <sup>(2)</sup> mgd = million gallons per day FM: Flowmeter				

### 4.3.1 Wastewater Flow Components

Typically, wastewater consists of three components: base wastewater flow (BWF), groundwater infiltration (GWI), and rainfall dependent inflow and infiltration (RDII). BWF and GWI during dry weather constitute dry weather flow (DWF). GWI occurs when groundwater levels are above the inverts of the collection system pipes and when the collection system has faulty joints or other defects that allow infiltration. Sewer pipes within close proximity to a body of water can be greatly influenced by groundwater effects. RDII occurs during wet weather conditions and causes wastewater flow to increase.

#### 4.3.1.1 Base Flow Projections

BWF is sanitary flow generated from residential, commercial, industrial, and public or institutional sources that discharge into the wastewater collection system. It may vary in magnitude throughout the day, but generally follows a predictable and repeatable diurnal pattern with peak flow usually occurring during the morning hours.

Unit flow rates were determined for all major land use designations; single family residential, multi-family residential, commercial, and industrial as part of the BWF calculations. The City's land use categories identified in the parcel and zoning maps were consolidated for use in developing the flows. The distribution of these land uses is shown in Figure 4.2 and 4.3.

#### 4.3.1.1.1 Residential Unit Flow Rates

Residential unit flow rates were developed using the 2006 flow monitoring data, the zoning map, and the City parcel map. The unit flow rates (gpcd) for existing conditions were initially selected based on our experience with similar cities and later refined through iterative techniques. For each land use category, the total number of houses or tax lots (units) per acre of land was determined. An average household size of 2.75 persons per house was assumed for residential categories. The average household size (persons/unit) multiplied by the number of houses or units per acre in each land use category yielded a total population per acre (i.e. population density). The area flow rate (gpd/acre) for each land use category was then determined by multiplying by the population density by the unit flow rate (gpcd).

The future residential area flow rates were assumed to be 1.2 times the area flow rates calculated for the existing conditions. Table 4.3 lists the existing and future unit rates used to generate BWF.

#### 4.3.1.1.2 Commercial and Industrial Unit Flow Rates

The commercial and industrial unit flow rates were selected based on our experience with similar cities and later refined through iterative techniques. These rates listed in Table 4.3 are close to typical rates of commercial and industrial flows that can vary from 800 to 1,500 gpd/acre (*Wastewater Collection System Modeling and Design*, First Edition, Haestad Methods et al., 2004). However, commercial and industrial rates can vary greatly depending on the type of activity that affects intensity of use, low flow fixtures, local water rates, etc.

Table 4.3      Summary of Flow Monitoring Results Wastewater Collection System Rehabilitation Program City of Meridian, MS							
Land Use Type	Persons per Unit	Units per acre	Persons per acre	Unit Flow Rate (gpcd)		Area Flow Rate (gpd/acre)	
				Existing	Future	Existing	Future
Residential							
Single Family Residential	2.75	2	5.50	73	88	400	484
Medium Density Residential	2.75	5	13.75	69	83	950	1,141
High Density Residential	2.75	10	27.50	65	78	1,800	2,145
Non-Residential							
Central Business						3,000	3,600
General Business						2,000	2,400
Neighborhood Business						900	1,080
Professional Business						2,000	2,400

<b>Table 4.3      Summary of Flow Monitoring Results Wastewater Collection System Rehabilitation Program City of Meridian, MS</b>			
Regional Business		2,200	2,640
Residential Business		900	1,080
Heavy Industrial		720	864
Light Industrial		400	480
Public		22	26

#### 4.3.2 Groundwater Infiltration (GWI)

GWI is groundwater that infiltrates into the sewer system through defects in manholes and pipes. GWI rates vary depending on time of year, the condition of the sewers, soil type, and groundwater levels. However, GWI rates stay fairly consistent throughout the day. GWI was calculated as the difference between metered DWF and BWF at each flow meter basin. The calculated GWI was applied evenly as a flow per acre to the entire area upstream of each flow meter. Table 4.4 summarizes the modeled GWI flow that was used for each basin. The GWI loads were later re-evaluated and adjusted during final calibration of the dry weather flow model.

For future areas, GWI was calculated by identifying the sub basin the future land is located. To calculate the GWI the corresponding GWI rate was multiplied by the future land area. Table 4.4 below shows the calculated BWF and GWI rates.

<b>Table 4.4      Base Wastewater Flow and Groundwater Infiltration Wastewater Collection System Rehabilitation Program City of Meridian, MS</b>								
Site	Flow (mgd)		Site	Flow (mgd)		Site	Flow (mgd)	
	BWF	GWI		BWF	GWI		BWF	GWI
2	0.840	0.160	12	0.183	0.087	22	0.105	0.055
3	0.051	0.019	13	0.008	0.001	23	0.078	0.012
4	0.087	0.013	14	0.472	0.168	24	0.149	0.061
5	0.024	0.016	15	0.221	0.199	25	0.156	0.084
6	0.155	0.025	16	0.290	0.150	26	0.065	0.025
7	0.018	0.002	17	0.195	0.095	27	0.050	0.010
8	0.345	0.185	18	0.036	0.004	28	0.08	0.03
9	0.049	0.021	19	0.099	0.031	29	0.171	0.180

Table 4.4 Base Wastewater Flow and Groundwater Infiltration Wastewater Collection System Rehabilitation Program City of Meridian, MS								
Site	Flow (mgd)		Site	Flow (mgd)		Site	Flow (mgd)	
	BWF	GW		BWF	GW		BWF	GW
10	0.131	0.091	20	0.039	0.011	30	0.055	0.015
11	0.042	0.018	21	0.047	0.013			
DWF = BWF + GW								

#### 4.3.3 Rainfall Dependent Inflow and Infiltration (RDII)

RDII consists of stormwater entering the collection system either as direct inflow of stormwater runoff or rainfall induced infiltration. Inflow occurs when stormwater flows directly into the collection system through connected catch basins, manhole covers, area drains, or downspouts. Inflow usually occurs very rapidly during a storm event and can become more severe if surface flooding occurs and manholes are submerged. Rainfall induced infiltration is caused by stormwater percolating through the ground and entering the sewer pipes, manholes, and service laterals through cracks and defective joints.

Analysis of RDII requires a method to relate sewer flows to rainfall. Methods in use are documented in the Water Environment Research Foundation project report *Sanitary Sewer Overflow Flow Prediction Technologies*, Project, April 1999. The Rainfall-Flow Regression Method and true hydrologic method are two commonly methods often considered.

The Rainfall-Flow Regression method estimates RDII based upon a relationship developed using multiple linear regressions to associate rainfall summed over various antecedent periods to observed RDII flow. Due to the available data quality and quantity, the Rainfall-Flow Regression Method was not considered in this study.

True hydrologic method was used in this analysis. This approach can be used to estimate basin response to any arbitrary rainfall condition. A runoff model was developed to simulate the response of the sanitary collection system to sanitary, groundwater, hydrologic, and rainfall derived flows. Once calibrated, the model can be used with a long-term local rainfall record or design storms to simulate the RDII and total flows that would be expected at every hour of that rainfall record. With this method, there is increased confidence that the response of the system is accurately estimated. This confidence, however, is predicated on the ability of the model to predict peak flows beyond the range of rainfall conditions experienced in the monitoring periods. Confidence is increased with longer monitoring and a greater variation in rainfall events during that monitoring period.

## **4.4 MODEL CALIBRATION**

Model calibration is a crucial component of the hydraulic modeling effort. Model calibration to known flow metering data is necessary to provide more accurate modeling results. The calibration process consists of calibrating to both dry and wet weather flow events. Dry weather flow calibration ensures an accurate depiction of base wastewater flow generated within the study area, based on land use. The wet weather flow calibration consists of calibrating the hydraulic model to a specific storm event to quantify the peak and volume of inflow and infiltration into the collection system. The amount of inflow and infiltration allowed to enter the collection system is essentially the difference between the wet weather flow and dry weather flow components.

### **4.4.1 Dry Weather Flow Calibration**

Calibration under dry weather flow conditions was performed to verify the base flow generated. The calibration was performed at each flow monitoring location using data from the 2006 monitoring program. The dry weather calibration period is based on monitored flows occurring from 04/13/2006 through 04/19/2006. The primary goal of the calibration was to match the volume of flow generated in the model with the volume measured during the monitoring period. The secondary goal was to match the average dry weather flow pattern between the data sets.

GWl and BWF rates were added to each loading manhole (flow insertion point) and run through the XP-SWMM model. The dry weather calibration process required the adjustment of BWF and GWl parameters so the peaks and valleys of the diurnal curve would match dry weather flow monitoring data gathered for this project. A closely calibrated model consists of diurnal curves (model) peaking consistently with diurnal with diurnal curves developed through flow monitoring process.

Adjustments were made to BWF loads within each sub basin so that the peaks and valleys of the diurnal curves matched the observed flows recorded by the respective flow meter. Judgment was used to evaluate and modify the initial loads throughout the service area. Several iterative simulations were executed during the model calibration.

After the residential, commercial and industrial flows were determined, diurnal curves were created for all pipes tributary to a specific flow meter. The diurnal curves depict the time variation of base flow throughout a 24-hour period. Usually, peaks in a diurnal curve will occur in the morning between 8 a.m. and 10 a.m., and again in the evening between 6 p.m. and 8 p.m. Using the flow data measured during the monitoring period, an average diurnal curve was developed for each flowmeter basin.

The dry weather diurnal curves were developed using five days of dry weather that were preceded by dry weather periods of at least a few days. These days fell between 04/13/2006 and 04/19/2006. The dry weather flow pattern was based on metered flows occurring every 15 minutes (pattern time step in the model) over a 24-hour period (duration in model). The dry weather pattern was considered uniform throughout the sewer system upstream of the flow monitoring point.

Consequently, sanitary base loads upstream of the calibration points were adjusted by the dry weather pattern for the dry weather calibration.

The results of the dry weather flow calibration are shown in Table 4.5. Graphical results for two flow monitoring sites are presented in Figures 4.5 and 4.6. Similar analyses were completed for all flowmeter basins and are presented in Appendix 2.

<b>Table 4.5      Dry Weather Flow Calibration Results</b> <b>Wastewater Collection System Rehabilitation Program</b> <b>City of Meridian, MS</b>											
Site	Average Flow (mgd)		Absolute Error (%)	Site	Average Flow (mgd)		Absolute Error (%)	Site	Average Flow (mgd)		Absolute Error (%)
	Actual	Model			Actual	Model			Actual	Model	
2	1.390	1.405	1.08	12	0.270	0.268	0.74	22	0.160	0.162	1.25
3	0.070	0.070	0.00	13	0.960	1.002	4.38	23	0.300	0.305	1.67
4	0.320	0.317	0.94	14	1.060	1.055	0.47	24	0.210	0.212	0.95
5	0.220	0.218	0.91	15	0.420	0.421	0.24	25	0.330	0.328	0.61
6	0.180	0.182	1.11	16	2.410	2.45	1.66	26	0.090	0.089	1.11
7	0.020	0.021	5.00	17	0.510	0.515	0.98	27	0.260	0.262	0.77
8	0.880	0.853	3.07	18	0.040	0.042	5.00	28	0.11	0.111	0.91
9	0.070	0.072	2.86	19	0.180	0.178	1.11	29	0.350	0.351	0.29
10	0.280	0.276	1.43	20	0.050	0.051	2.00	30	0.180	0.177	1.67
11	0.060	0.062	3.33	21	0.220	0.217	1.36				

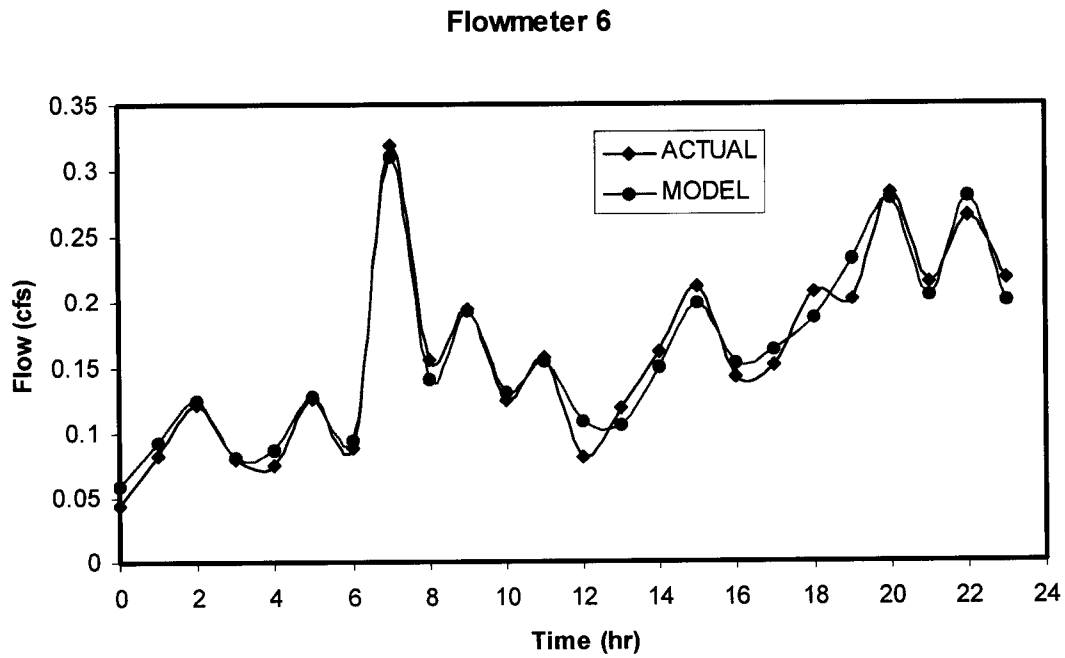


Figure 4.5 Comparison of Modeled and Actual Flow - Flowmeter 6

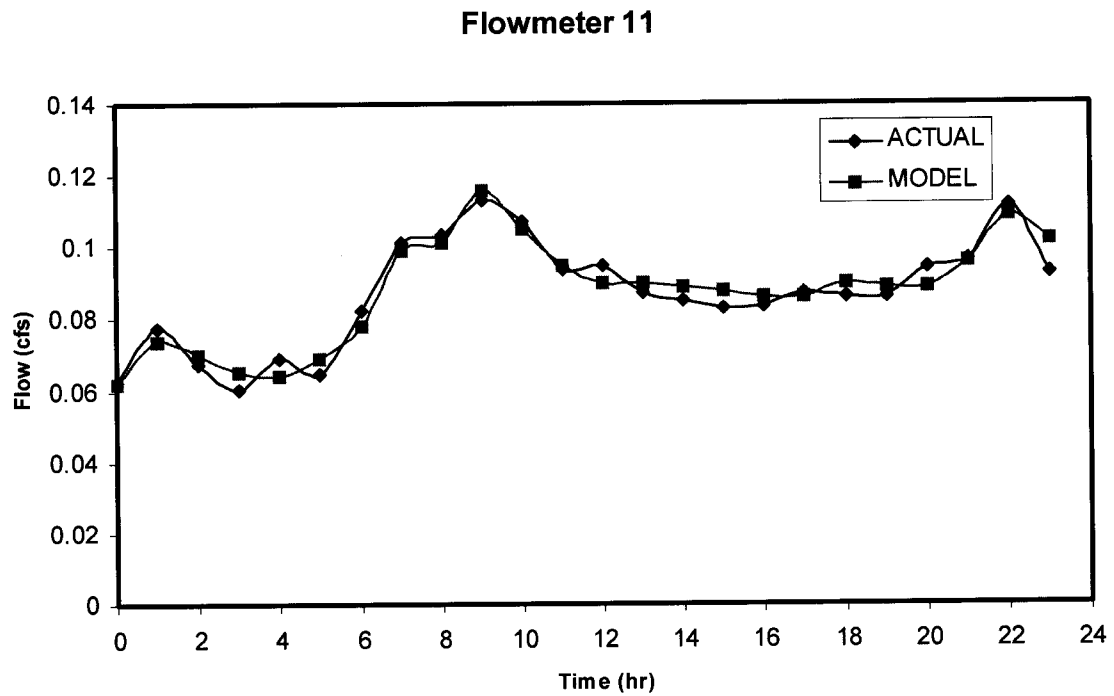


Figure 4.6 Comparison of Modeled and Actual Flow - Flowmeter 11

#### **4.4.2 Wet-Weather Flows**

The wet weather calibration involves simulation of observed rainfall data to produce a hydrograph of flow and manhole hydraulic grade line (HGL) for the conduit containing the monitoring equipment. The model output is then graphically compared to observed data.

The wet weather flow calibration begins with the development of runoff model to estimate RDII. The XP-SWMM software was used to develop the runoff model to simulate the response of the sanitary collection system to sanitary, groundwater, and rainfall derived flows. Once constructed and calibrated, the runoff model was used to project flows under wet weather conditions for existing conditions.

##### **4.4.2.1 Runoff Modeling Approach**

Simulating RDII using XP-SWMM runoff requires the specification of sub basin characteristics that result in correct RDII. These sub basin characteristics do not have any physical significance, but they allow simulation of RDII using runoff calculation formulations. The parameters specified include sub basin area and percent imperviousness. The sub basin area was calculated as the surface area of the sewer tributary area to the inflow point in the model. The percent imperviousness is used to represent the ratio of RDII volume in feet to rainfall depth in feet. The percent imperviousness is a dimensionless parameter and is equivalent to runoff coefficient.

The percent imperviousness value was determined by analysis of flow monitoring data. After separating the rainfall-induced flow for a number of storms, RDII volumes were calculated and plotted versus rainfall depth. The slope of the correlation line gives an estimate of the percent imperviousness. Typically, a sanitary sewer system in good condition will have percent imperviousness values of less than 0.01. Approximately, fifty percent of the flow monitoring sites have percent imperviousness values greater than 0.01.

The ultimate goal of the wet weather flow calibration was for the modeled data to match the storm peaks from the 2006 flow monitoring data. To avoid significant errors in projection the model was calibrated over approximately one full wet season of flow data. It is highly probable that flows measured in such conditions will reflect the peaks that can occur under wet antecedent conditions. The storm event used for wet weather calibration occurred on March 20, 2006, April 21, 2006 and April 30, 2006. Once the model was loaded with existing BWF, GWI and RDII, the hydraulics were analyzed to verify that the correct peak flows were being predicted at each flow monitor location. Parameters such Manning's roughness coefficient, infiltration parameters and sub basin width were adjusted to calibrate the model.

Figures 4.7 and 4.8 compare the observed and modeled flows for two monitoring sites. The calibration results show a reasonable agreement between observed and modeled flows at all the flow monitoring sites.

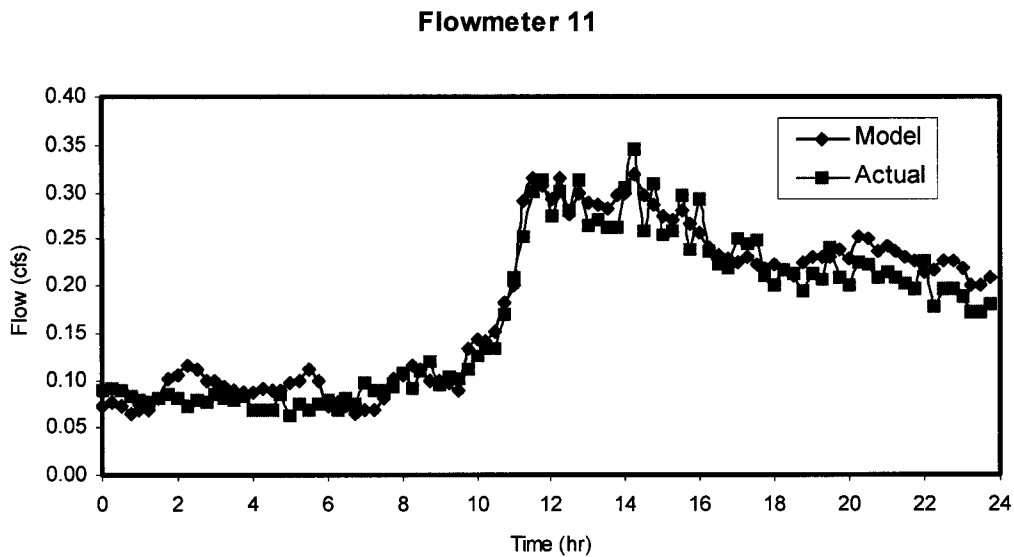


Figure 4.7 Wet Weather Flow Calibration Results (04/30/2006) - Site 11

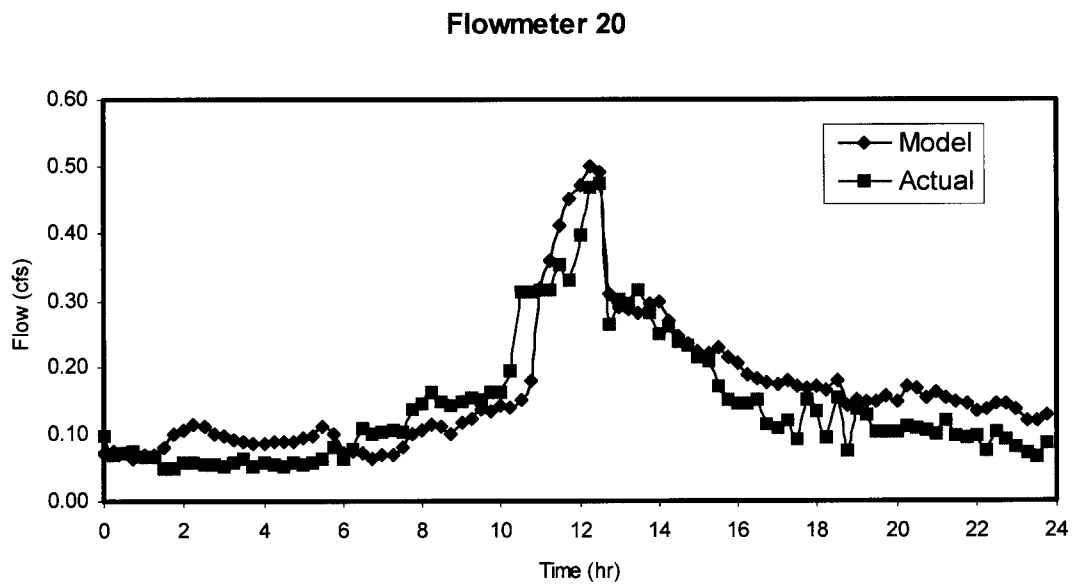


Figure 4.8 Wet Weather Flow Calibration Results (04/30/2006) - Site 20

## 4.5 CAPACITY ANALYSIS

A capacity analysis of the modeled collection system was performed upon completion of the dry and wet weather flow calibrations. The capacity analysis entailed identifying areas in the collection system where flow restrictions occur or where pipe capacity is insufficient to pass peak wet weather flows. This section presents the results of hydraulic analysis of the existing collection system under existing and build-out flow conditions. Deficiencies in the City's service area were evaluated using a dynamic computer model. The model calculates sanitary sewer system flows for existing and future conditions based on land use, population, and RDII, and compares the flows to the capacity of each modeled pipe in the system. Pipe segments whose calculated capacity is less than their predicted flow are identified in this report as "deficient" or "inadequate." Based on the hydraulic analysis, a preliminary capital improvement program is developed.

### 4.5.1 Design Storm Selection

A design storm was developed to estimate the peak wet weather flow in the system and to provide information to perform the capacity analysis. Design storms are "synthetic" rainfall events based on historical rainfall data used to analyze the performance of a collection system under peak flows and volumes. The design storm has a specific recurrence interval and rainfall duration. Development of a design storm is based on rainfall intensity, pattern, and volume. Analysis of these parameters is crucial in providing a realistic design storm for the City, thus a higher design standard for the collection system is an inefficient use of resources. Based on U.S. Department of Agriculture, Soil Conservation Service Technical Publication 40, (TP 40), rainfall intensity-duration and frequency curves were developed for the City of Meridian. These curves were used to estimate the frequency of the measured rainfall data. Appendix D contains detailed description on the development of the design storms for this analysis. The rainfall intensity-duration relationships developed for the Meridian area are presented in Table 4.6.

<b>Table 4.6 Rainfall Depth - Duration - Frequency Relationship Wastewater Collection System Rehabilitation Program City of Meridian, MS</b>							
Return Period	Rainfall Intensity (in/hr)						
	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
1	2.90	1.80	1.10	0.80	0.47	0.28	0.18
2	3.30	2.10	1.25	1.10	0.58	0.35	0.20
5	4.20	2.60	1.60	1.17	0.75	0.43	0.26
10	4.40	2.80	1.85	1.33	0.83	0.51	0.30
25	5.20	3.20	2.00	1.50	0.98	0.59	0.33
50	5.60	3.60	2.25	1.67	1.13	0.68	0.37
100	6.40	3.80	2.50	1.83	1.18	0.75	0.43

The rainfall periods used to calibrate the hydraulic model occurred on April 30, 2006, April 4, 2006 and April 30, 2006. During these periods, the greatest continuous 24-hour volume was less than the 5-year storm event determined by statistical analysis. However, additional analysis was performed on historic dry and wet weather flow data. Based on this data, it was determined that the calibration storm was approximately a 5-year storm event.

#### **4.5.2 Collection System Model Analysis**

The collection system was modeled and analyzed using the 5-year 24-hour design storm to determine the system capacity deficiencies. The capacity analysis was performed for the existing land use condition and the build-out scenario. Within the model, the design storm produces RDII flows. A combination of RDII and dry weather flows is routed through the collection system hydraulic model. The hydraulic model determines which pipelines in the collection system are unable to convey the peak wet weather flows caused by the design storm.

##### **4.5.2.1 Hydraulic Evaluation Criteria**

The hydraulic evaluation criteria present the guides used to evaluate the existing collection system. Using these guides, solutions were formulated for each alternative by solving conveyance and overflow problems in the collection system. These guides consist of design objectives, design criteria and physical constraints. Using these guides, capital improvements were developed and cost estimates completed as presented in this report.

##### **4.5.2.1.1 *Existing and Future System Evaluation Criteria***

The capacity and performance of the existing system and future system scenarios was evaluated based on the following criteria:

- Pipe surcharge: Pipe surcharge occurring during the 5-year wet weather event design conditions should be eliminated. Under dry weather conditions, a depth to diameter ( $d/D$ ) value less than 50 percent is desirable. Under the 5-year wet weather design conditions, a  $d/D$  ratio should not exceed 100 percent. Capacity limiting problems were identified at all pipes that exceeded these threshold values. Siphons and adjacent pipes are noted as exception to this rule.
- Sanitary sewer overflows (SSOs): Sanitary sewer overflows occurring during the 5-year wet weather design conditions should be eliminated. SSOs are noted as “flooding” or “flooded structures” in the model.
- Pipe Velocity: Flow velocities should be maintained between 2 and 10 feet per second (fps). Velocities less than 2 fps could cause solids to settle out of the wastewater and that could lead to clogged pipes and system backups. Additionally, an accumulation of solids may trap organic solids, increase detention time and promote sulfide generation. Velocities greater than 10 fps require special protection against erosion and impact. Flow velocities were evaluated under dry and wet weather conditions.

Sewer reaches exhibiting less than minimum velocity in the model was not used as a sole criterion to “trigger” pipe reaches with hydraulic problems for two reasons. First, sewers exhibiting less than minimum velocity but are not surcharged have sufficient hydraulic capacity to pass the design storm flows. Second, correcting the minimum velocity problem requires constructing a new larger pipe and/or increasing the pipe slope. Replacement of a sewer pipe that otherwise has sufficient hydraulic capacity simply to resolve a minimum velocity and potential solids deposition problem is very costly. Solids deposition can be controlled by preventive maintenance at a much lower cost than reconstructing portions of the collection system.

The options of replacement and upsizing of existing sewers was considered in all situations and implemented where deemed appropriate.

#### **4.5.2.2 Model Scenarios**

The collection system was evaluated to identify inadequacies and problem areas. The system capacity was evaluated to determine what pipe or pump was potentially limiting collection system efficiency. Evaluation of the efficiency of the collection system was based on capacity of the pipes under dry weather and wet weather flow conditions. Capacity was illustrated using a d/D ratio. Velocity related problems were also identified.

A total of four model scenarios were developed to analyze the City's sewer collection system. These model scenarios are summarized below in Table 4.7.

<b>Table 4.7      Model Scenarios</b> <b>Wastewater Collection System Rehabilitation Program</b> <b>City of Meridian, MS</b>	
Scenario	Description
EX-DWF	Existing conditions dry weather flow
EX-WWF 5-YR-24 HR-SCS II	Existing condition wet weather flow 5-year, 24-hour SCS Type II Storm Inflow and Infiltration
FUT-DWF	Future conditions dry weather flow
FUT-WWF 5-YR-24 HR-SCS II	Future condition wet weather flow 5-year, 24-hour SCS Type II Storm Inflow and Infiltration

#### **4.5.2.3 EX-DWF Results**

The existing system was evaluated under dry weather flow conditions to identify inadequacies and problem areas. The model was examined during the daily peak hour, which occurred daily at approximately 9:00 a.m.

Model simulations of the existing conditions indicated that SSOs did not occur during dry weather flows. All pipes were running well below maximum capacity. Under dry weather flow, a general rule-of-thumb says the d/D ratios should be less than 0.5.

Low flow velocities were abundant under dry weather flow conditions. Velocities greater than 2 fps occurred in approximately 59,602 feet or 18 percent of the modeled pipes. Locations of pipes with velocities less than 2 fps are shown on Figure 4.9. Results of the monitoring program indicated low flow velocities were a constant problem in much of the system. High flow velocities exceeding 10 fps did not cause problems under dry weather flow conditions.

#### **4.5.2.4 EX-WWF 5-YR-24 HR-SCS II Results**

The model was run under wet weather design flows to assess capacity, SSOs and velocity related problems. Design flow conditions from a 5-year, 24-hour SCS Type II design storm were applied to the dry weather flows. The model was examined during the design flow peak hour, which occurred between model hour 12:00 and 13:00. At this time, the peak flow from the design storm produced the maximum hydraulic stress to the system.

The model results indicate that no SSOs occurred under the 5-year, 24-hour SCS Type II design storm conditions. Pipe with d/D values that exceeded 1.0 are listed in Table 4.8 and the relative locations of these pipes are displayed in Figure 4.10.

System velocities were evaluated under wet weather flow conditions. Flow velocities less than 2 fps or greater than 10 fps were found to be a problem under wet weather design flow conditions.

#### **4.5.2.5 FUT-DWF Results**

The existing system was evaluated under future dry weather flow conditions to identify inadequacies and problem areas. The model was examined during the daily peak hour, which occurred daily at approximately 9:00 a.m.

Model simulations of the existing conditions indicated that SSOs did not occur during dry weather flows. All pipes were running well below maximum capacity. Under dry weather flow, a general rule-of-thumb says the d/D ratios should be less than 0.5.

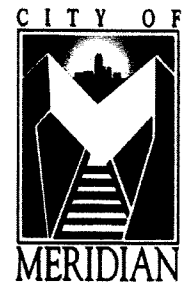
System velocities were evaluated under wet weather flow conditions. Flow velocities less than 2 fps or greater than 10 fps were found to be a problem under wet weather design flow conditions.

#### **4.5.2.6 FUT-WWF 5-YR-24 HR-SCS II Results**

The model was run under future wet weather design flows to assess capacity, SSOs and velocity related problems. Design flow conditions from a 5-year, 24-hour SCS Type II design storm were applied to the dry weather flows.

The model results indicate that no SSOs occurred under the 5-year, 24-hour SCS Type II design storm conditions. Pipe with d/D values that exceeded 1.0 are listed in Table 4.8 the relative locations of these pipes are displayed in Figure 4.10.

System velocities were evaluated under wet weather flow conditions. Flow velocities less than 2 fps or greater than 10 fps were found to be a problem under wet weather design flow conditions.



#### Legend

- Model Pipe
- Vel. Greater Than 2 fps
- Meter Basins



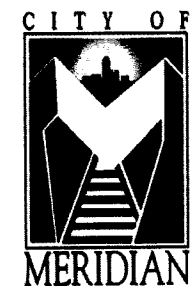
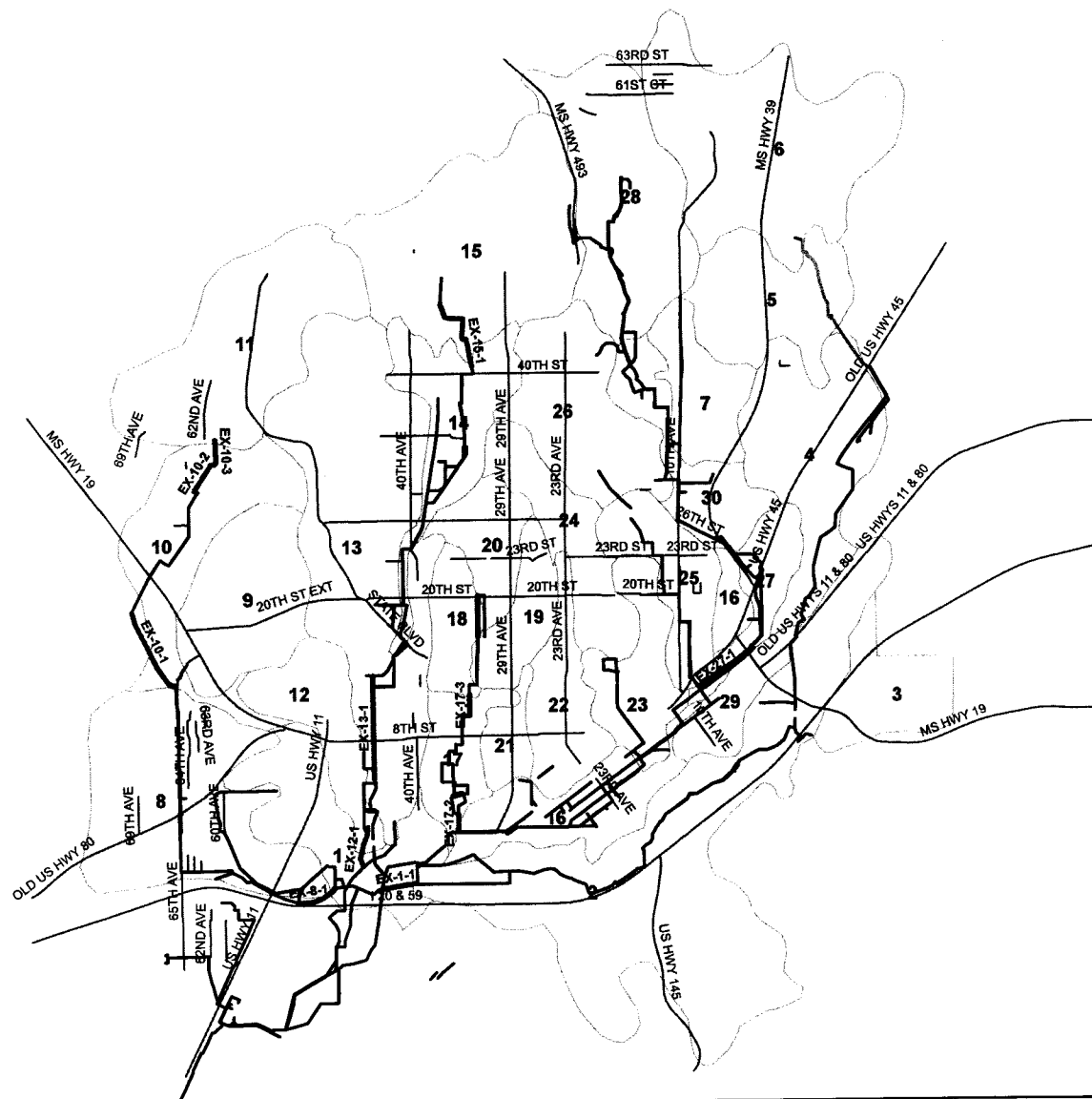
0 4,000  
Feet

City of Meridian, MS  
Wastewater Master Plan



Figure 4.9

## DRY WEATHER FLOW VELOCITY DISTRIBUTION



### Legend

- EX-8-1
- EX-27-1
- EX-18-1
- EX-17-3
- EX-17-2
- EX-17-1
- EX-15-1
- EX-13-1
- EX-12-1
- EX-10-3
- EX-10-2
- EX-10-1
- EX-1-1
- FUT-5-1
- Meter Basins



0 4,000  
Feet

City of Meridian, MS  
Wastewater Master Plan



Figure 4.10

## CAPACITY DEFICIENT PIPES

**Table 4.8 Hydraulically Deficient Pipe Segments  
Wastewater Collection System Rehabilitation Program  
City of Meridian, MS**

Problem ID	Basin	Manhole		General Location	Diameter (in)	Length (ft)	d/D
		Upstream	Downstream				
EX-17-1	17	G27-179	G27-177	Along 34th Ave. between 12th St. and 11th St.	12	345.9	1.24
EX-10-1	10	E28-009	LS-AT	About 1,500 ft east of MS Hwy 19 and N. HILL St.	16	3119.0	1.47
EX-8-1	8	F25-036	F25-030	About 600 ft north of I29 and 49th St., between 5	24	1431.4	1.68
EX-10-2	10	F30-175	F30-158	East of Oak Dr. between Bounds Rd. and Spruce St.	10	1199.8	1.43
EX-10-3	10	F31-070	F30-185	300 ft east of Bounds Rd. and 62nd Ave. 17th St. a	10	999.6	1.35
EX-20-1	20	G29-032	G28-053	Along 33rd Ave., between 17th St. and 21st St.	10	1430.5	1.29
EX-12-1	12	G25-017	G25-015	East of 49th St., between 1st St. and Front Rd.	18	1164.5	1.21
EX-1-1	1	G25-043	G25-029	North of I20 between 49th Ave. and 31st Ave.	24	1005.6	1.16
EX-17-2	17	G26-268	G25-078	Along 36th Ave., between 2nd St. and Interchange	27	593.5	1.19
EX-27-1	27	I28-069	I27-080	North of 8th Ave., between B St. and US Hwy 45	15	2390.1	1.26
EX-13-1	13	G28-152	G26-128	Along 45th Ave., between 14th St. and 5th St.	24	3556.4	1.33
EX-17-3	17	G27-183	G27-163	Along 34th St. between 12th St. and 10th St.	12	1004.1	1.41
EX-15-1	15	G32-078	G31-131	Along 34th Ave., 35th Ave. and 36th Ave.	10	2927.1	1.27
FUT-5-1	5	J33-004	J31-050	Between N. Hills St. and Old US Hwy 45	10	5027.0	1.78

### 4.5.3 Existing System Recommendations

Recommendations are made for improvements to the existing system in order to eliminate problems identified. These recommendations include increase pumping capacity, increase conveyance capacity and implementation of a sewer-flushing program.

#### 4.5.3.1 Pumping Capacity

The model results and a separate pump stations analysis shows the pump capacities of pump stations identified as LS-AN(Red Lobster) and LS-AT(65th Ave) should be increased to accommodate the existing design storm flows. Detailed analysis and recommendations for these pump stations are presented in section 3.

#### 4.5.3.2 Conveyance Capacity

Increased conveyance is required in nine basins to eliminate system surcharge. When additional capacity is required, existing sewers can be replaced or paralleled. Most of the recommendations presented in this master plan are based on replacing existing undersized pipe with pipe sized to convey the projected peak flows. This is the preferred alternative for most undersized pipe

conditions. In some situations, other alternatives may be available, including basin (gravity and pumping) transfers, and the use of parallel pipes. The latter approach was not used in this master plan, but should be considered during pre-design if the existing pipe is determined to be in good condition.

For the purposes of this master plan, it was assumed that a deficient existing sewer would be replaced with a larger pipeline at the same slope as the existing pipeline. The criteria used to determine whether an existing pipeline should be replaced were based on the pipeline's capacity to convey peak wet weather flow during the 5-year, 24-hour design storm event.

Based on simulation results, a number of pipelines require improvements for existing and future conditions during the 5-year, 24-hour design storm. Several of the pipelines that require improvements for existing conditions will also require improvements during future conditions, albeit with a larger diameter. It is recommended that the larger diameter be constructed so that these pipelines will have sufficient capacity not only for existing but also for future conditions. A second phase of construction at a later date to account for deficiencies during future conditions would not be cost effective.

Table 4.9 presents a summary of the improvements required during existing and future conditions. The proposed pipe diameter represents the ultimate diameter in cases where further upsizing for build-out conditions was required.

#### **4.5.3.2.1 Basin 17**

Under existing conditions, majority of the sewer system modeled for the Basin 17 is hydraulically adequate. Three pipe segments; EX-17-1, EX-17-2 and EX-17-3 show surcharging conditions. The d/D values for these hydraulically deficient pipe segments ranged between 1.19 and 1.41.

Under future conditions, the analysis indicates the surcharging identified under existing conditions will increase but no risk of overflows. It is recommended that the three pipe segments be upsized as shown in Table 4.9.

#### **4.5.3.2.2 Basin 10**

Under existing conditions, three pipe segments; EX-10-1, EX-10-2 and EX-10-3 show surcharging conditions. The d/D for these hydraulically deficient pipe segments ranged between 1.35 and 1.47.

Under future conditions, the analysis indicates the surcharging identified under existing conditions will increase but no risk of overflows.

It is recommended that the three pipe segments be upsized as shown in Table 4.9.

#### **4.5.3.2.3 Basin 8**

Pipe segment EX-8-1, located between east of MS Hwy 19 and N. Hills St. is slightly surcharged under existing conditions. Simulation results indicate the surcharging will worsen under future flow conditions if no action is taken.

<b>Table 4.9 Recommendations for Hydraulically Deficient Pipes Wastewater Collection System Rehabilitation Program City of Meridian, MS</b>							
Problem ID	Basin	Manhole		General Location	Diameter (in)		Length (ft)
		Upstream	Downstream		Existing	Proposed	
EX-17-1	17	G27-179	G27-177	Along 34th Ave. between 12th St. and 11th St.	12	18	345.9
EX-10-1	10	E28-009	LS-AT	About 1,500 ft east of MS Hwy 19 and N. HILL St.	16	21	3119.0
EX-8-1	8	F25-036	F25-030	About 600 ft north of I29 and 49th St., between 5	24	30	1431.4
EX-10-2	10	F30-175	F30-158	East of Oak Dr. between Bounds Rd. and Spruce St.	10	18	1199.8
EX-10-3	10	F31-070	F30-185	300 ft east of Bounds Rd. and 62nd Ave. 17th St. a	10	18	999.6
EX-20-1	20	G29-032	G28-053	Along 33rd Ave., between 17th St. and 21st St.	10	18	1430.5
EX-12-1	12	G25-017	G25-015	East of 49th St., between 1st St. and Front Rd.	18	24	1164.5
EX-1-1	1	G25-043	G25-029	North of I20 between 49th Ave. and 31st Ave.	24	30	1005.6
EX-17-2	17	G26-268	G25-078	Along 36th Ave., between 2nd St. and Interchange	27	36	593.5
EX-27-1	27	I28-069	I27-080	North of 8th Ave., between B St. and US Hwy 45	15	24	2390.1
EX-13-1	13	G28-152	G26-128	Along 45th Ave., between 14th St. and 5th St.	24	36	3556.4
EX-17-3	17	G27-183	G27-163	Along 34th St. between 12th St. and 10th St.	12	21	1004.1
EX-15-1	15	G32-078	G31-131	Along 34th Ave., 35th Ave. and 36th Ave.	10	18	2927.1
FUT-5-1	5	J33-004	J31-050	Between N. Hills St. and Old US Hwy 45	10	18	5027.0

This pipe segment should be upsized to 30 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.4 Basin 20**

Pipe segment EX-20-1, located along 33rd Ave. between 17th St. and 21st St. is slightly surcharged under existing conditions. Simulation results indicate the surcharging will worsen under future flow conditions if no action is taken. This pipe segment should be upsized to 18 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.5 Basin 12**

Pipe segment EX-12-1 is hydraulically deficient for both existing and future conditions flows. This pipe segment should be upsized to 24 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.6 Basin 1**

Pipe segment EX-1-1 shown on Figure 4.17 is hydraulically deficient for both existing and future conditions flows. This pipe segment should be upsized to 30 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.7 Basin 27**

Under existing conditions, majority of the sewer system modeled for the Basin 27 is hydraulically adequate. One pipe segment; EX-27-1 shows surcharging conditions under existing and future flow conditions. This hydraulically deficient pipe should be upsized to 24 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.8 Basin 13**

Pipe segment EX-13-1, located along 45th Ave. between 14th St. and 5th St. is surcharged under existing conditions. Simulation results indicate the surcharging will worsen under future flow conditions if no action is taken. This pipe segment should be upsized to 36 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.9 Basin 15**

Under existing conditions, majority of the sewer system modeled for the Basin 15 is hydraulically adequate. One pipe segment; EX-15-1 shows surcharging conditions under existing and future flow conditions. This hydraulically deficient pipe should be upsized to 18 inches to alleviate the existing and future conditions surcharging.

#### **4.5.3.2.10 Basin 5**

Under existing conditions, all of the sewer system modeled for the Basin 5 is hydraulically adequate. However, under future flow conditions, one pipe segment; FUT-5-1 shows surcharging

conditions. This hydraulically deficient pipe should be upsized to 18 inches to alleviate the future conditions surcharging.

#### **4.5.3.3 Sewer Flushing Program**

Low flow velocities, less than 2 fps, were prevalent throughout the modeled system. Low flow velocities cause debris to deposit in the sewers. Sludge, sand and other debris that have settled can effectively be removed through a sewer-flushing program. The flushing program requires high velocity of problem pipes up to 30 inches. All pipes in the existing system identified as having flow velocities less than 2 fps are shown on Figure 4.9. It is suggested that this figure be used as a guide for staff to target these problem areas.

#### **4.5.3.4 RDII Reduction Plan**

The capacity problems identified under the wet weather flow conditions stem primarily from excess RDII. RDII reduces the ability of sanitary sewer systems and treatment facilities to transport and treat domestic and industrial wastewater. There are various costs associated with RDII including sanitary sewer system overflow, wastewater treatment and transportation facilities, and funding opportunities. Additionally, sewer system backups into basements or households can result in litigation and potential liabilities for the responsible city or agency.

Capacity limitations caused by RDII can be managed either by reducing the RDII, conveying the excess flow through larger sewers and storage basins, or a combination of these two basic approaches. Eliminating inflow sources is normally the cheapest and quickest control measure. Infiltration control can be costly and is generally accomplished by repairing or replacing sewer mains and/or laterals. Expansion of sewage conveyance and storage capacity can also be expensive and is normally accomplished by eliminating bottlenecks with relief sewers or larger pump stations, or by constructing off-line storage for excess flow.

A RDII reduction plan consisting of a series of simulation runs was developed to determine tradeoffs between RDII reductions as compared to construction of increased sewer capacity. The analysis uses the calibrated hydraulic model to characterize the current RDII response at basin-scale. Conceptual reductions in RDII were then analyzed to predict the effectiveness of the reduction efforts. It was not the goal of this analysis to determine if it is cost-effective to pursue RDII reduction.

In conjunction with wet weather hydrographs, flow projections were used to produce various scenarios to evaluate three RDII reduction targets. The RDII reduction target levels ranged from 10 to 20 percent. The results show that if RDII reduction is found to be cost-effective, RDII reduction of between 15 and 20 percent will reduce observed surcharging by about sixty percent. The detailed results of all the five simulation runs are presented in Appendix D. It is suggested that independent study of the cost-effectiveness of RDII reduction be performed.

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**

Science and Ecosystem Support Division  
Field Services Branch  
980 College Station Road  
Athens, Georgia 30605-2720

August 6, 2015

**4SESD-FSB**

**MEMORANDUM**

**SUBJECT:** Compliance Evaluation Inspection (CEI) Report  
East Meridian POTW  
SESD Project # 15-0247

**FROM:** Jairo Castillo, P.E. *[Signature]*  
Enforcement Section

**THRU:** Mike Bowden, Chief *[Signature]*  
Enforcement Section

**TO:** Maurice Horsey, Chief  
Municipal & Industrial Enforcement Section  
NPDES Permitting & Enforcement Branch

Please find attached the Compliance Evaluation Inspection Report conducted at the East Meridian POTW, located at 4024 Old Hwy 45N, Meridian, Mississippi. The inspection was conducted on March 19, 2015. Please contact me at (706) 355-8621 or at [Castillo.Jairo@epa.gov](mailto:Castillo.Jairo@epa.gov) if you have any questions or comments.

Attachment

United States Environmental Protection Agency  
Region 4

Science and Ecosystem Support Division  
980 College Station Road  
Athens, Georgia 30605-2720



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**Compliance Evaluation Inspection Report**

**East Meridian POTW**

**4024 Old Hwy 45N**

**Meridian, Mississippi 39301**

**Inspection Date: March 19, 2015**

**SESD Project ID No. 15-0234**

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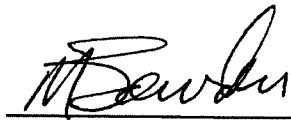
**Requestor: Maurice Horsey, Chief**  
Municipal and Industrial Enforcement Section  
Water Protection Division  
U.S.EPA Region 4  
Forsyth St. SW  
Atlanta, Georgia 30303-8960

**SESD Project Leader: Jairo Castillo, P.E.**  
Environmental Engineer  
Enforcement Section  
U.S. EPA Region 4  
980 College Station Road  
Athens, Georgia 30605-2720

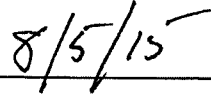
**Title and Approval Sheet**

Title: Compliance Evaluation Inspection (CEI) Meridian POTW East  
Meridian, Mississippi

**Approving Official:**

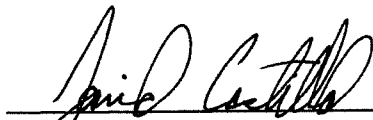


Mike Bowden, Chief  
Enforcement Section  
Field Services Branch

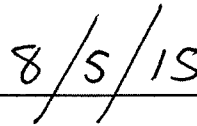


Date

**SESD Project Leader:**



Jairo Castillo, PE, Environmental Engineer  
Enforcement Section  
Field Services Branch



Date

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# **Compliance Evaluation Investigation Report**

## **East Meridian POTW**

### **Meridian, Mississippi**

## **1. INTRODUCTION**

During the week March 17, 2015, representatives of the U.S. Environmental Protection Agency, Science and Ecosystem Support Division (USEPA – SESD), conducted a Compliance Evaluation Inspection (CEI) at the East Meridian Publicly Owned Treatment Works (POTW) located at 4024 Old Hwy 45N in Meridian, MS. The CEI was performed at the request of the NPDES Permitting and Enforcement Branch, USEPA Region 4, as a follow-up inspection after the South Meridian POTW Reconnaissance Inspection conducted on April 8-9, 2014 by the Region 4 Water Protection Division.

The following personnel participated in the sampling inspection:

<u>Name</u>	<u>Organization</u>	<u>Telephone</u>
Jairo Castillo	USEPA–SESD, Inspector	(706) 355-8621
Bill Simpson	USEPA–SESD, Inspector	(706) 355-8748
Derek Little	USEPA–SESD, Inspector	(706) 355-8717
Sara Lee	Meridian POTW- Chief Operator	(601) 484-5392
Terry W. Cook, Jr.	Meridian, Chief Utility Operator	(601)-484-1815

## **2. BACKGROUND**

The East Meridian POTW is located in the City of Meridian in Lauderdale County, Mississippi. The Plant is located approximately 5 miles toward the east of the South Meridian POTW. The South and East Meridian POTWs had a combined NPDES Permit No. MS0020117.

The East Meridian POTW mainly serves the residential areas of a Naval Air Station (NAS). The plant design flow is 1.5 MGD. The facility's average effluent discharge was approximately 0.230 MGD. The plant consisted of a Headworks that included a micro screening and grit removal system, two sequencing batch reactors (SBRs), aerobic digester, an ultraviolet disinfection system, and an equalization basin.

On February 6, 2014, the City of Meridian asked the Mississippi Department of Environmental Quality (MSDEQ) to terminate the East Meridian POTW NPDES Permit No. MS0055735. See appendix B for copies of correspondence between Meridian and MSDEQ. The East Meridian POTW removed the discharge pumps and piping that allowed for discharge into the Sowashee Creek and can only internally discharge to the Mississippi Power Company (MPC Kemper Facility) passing through the new South Plant pump station or by gravity flow back to the South Plant to discharge into Sowashee Creek through the combined outfall 002, under permit MS0020117. Since October 2014, the East Plant transitioned into a 100% re-use of its treated effluent into the Mississippi Power Plant for water cooling use.

### **3. SUMMARY**

The purpose of this study was to evaluate the overall maintenance and operation of the plant's treatment systems and review the records and historical data relevant to plant operations associated with permit conditions. SESD reviewed the treatment processes and facility conditions, permit conditions, records, flow measurement system, sludge handling procedures and NPDES sampling.

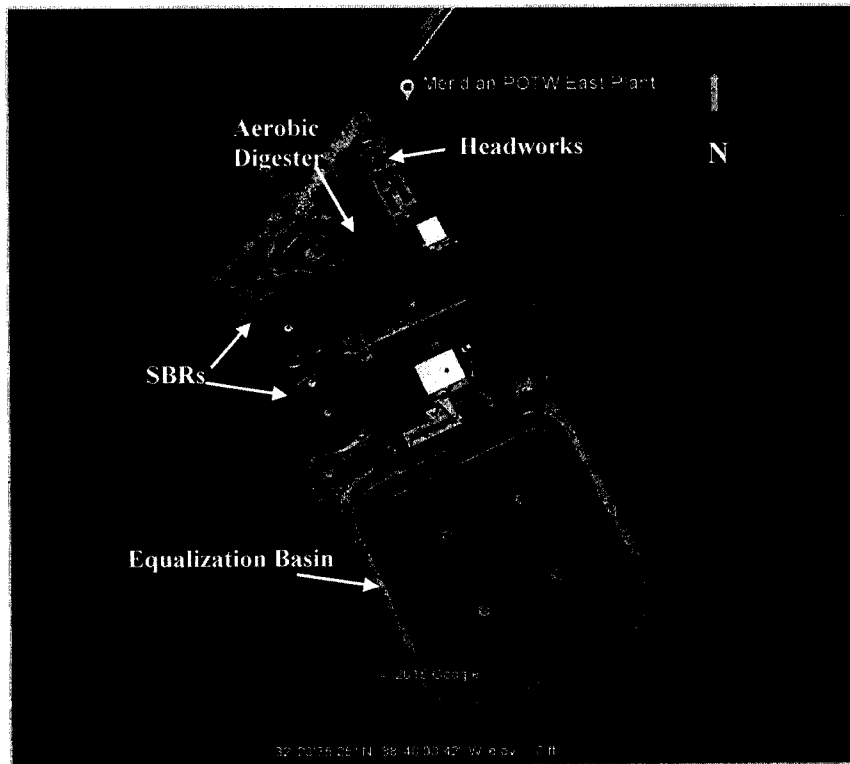
There were no discrepancies noted between the self-monitoring data and the data reported in the Discharge Monitoring Reports (DMRs). Calibration records were performed using a pencil instead of a permanent ink pen. The influent sampling deficiencies observed may affect the sampling results. Sample preservation techniques used for ammonia, total nitrogen, and phosphorus analyses may affect the data reported in the Discharge Monitoring Reports (DMRs). Steps should be made to correct these deficiencies and improve the accuracy of the DMRs analytical results. The collection system that served the wastewater treatment plant is impacted by high inflow and infiltration problems with frequent sanitary sewer overflows (SSOs). The appropriate corrective actions are included in the following sections of this report.

### **4. FACILITY SITE REVIEW**

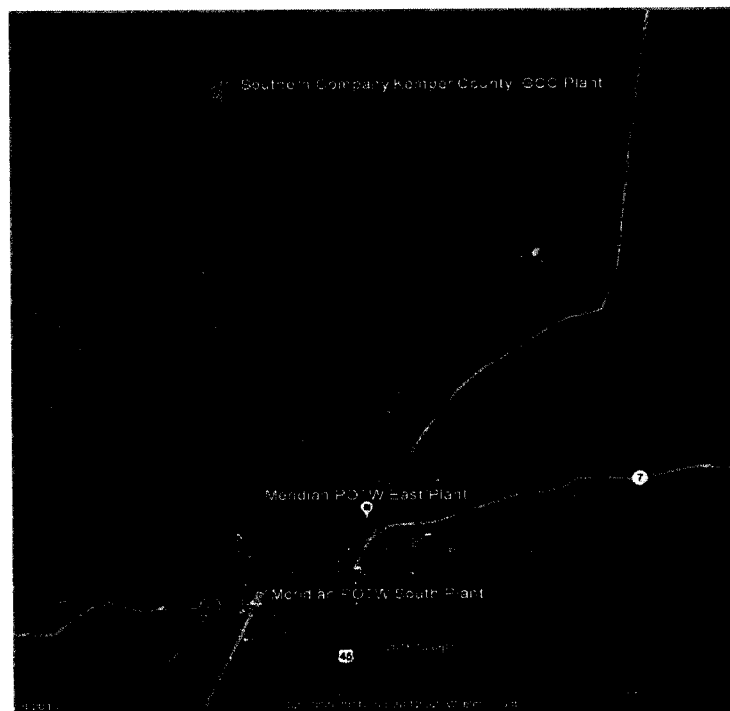
The East Meridian POTW is a 1.5 MGD (design) activated sludge wastewater treatment plant. The treatment train consisted of preliminary treatment (micro screening and grit removal) followed by two 80,000 gallon sequencing batch reactors (SBRs), one ultraviolet disinfection system and a lined equalization basin (See Figure 1, Page 6). The treated wastewater was discharged to the Mississippi Power Company (MPC Kemper Facility) through the South Meridian POTW Kemper Pump Station or by gravity flow back to the South Plant to discharge treated sewage into Sowashee Creek under the combined outfall 002.

Figure 1 shows the facility layout and Figure 2 shows the East and South Meridian POTWs locations related to the Mississippi Power Kemper IGCC Facility.

**Figure 1: East Meridian POTW Location**



**Figure 2: Locations of Kemper Coal Plant, South, and East Meridian POTWs**



## 5. PERMIT

The NPDES permit No. MS0020117 became effective on November 1, 2013 and expired on October 31, 2018. The name of the outfalls and the name of the receiving waters were as described in the permit. The East Meridian POTW is authorized to discharge into the internal Outfall 201 that is used by the Mississippi Power (Kemper) Plant or by gravity to the South Meridian POTW to discharge into Sowashee Creek.

On February 6, 2014, the East Meridian POTW Directors submitted a letter to the Mississippi Department of Environmental Quality requesting the termination of NPDES Permit No. MS0055735 due to the discontinuation of the plant's direct discharge into the Sowashee Creek. Permit MS0055735 was terminated on May 16, 2014.

## 6. RECORDS AND REPORTS

Self-monitoring records consisted of the following:

- discharge monitoring reports (DMRs)
- monthly operating reports (MORs)
- daily operational sheets
- calibration records
- analytical data reports

The self-monitoring records were kept for a minimum of three years. Two observations were noted.

### **Observations:**

- The calibration records were conducted using a pencil instead of a permanent ink pen.
- Data entries corrections were not cross marked and/or initiated.

### **Recommendations:**

- Procedures for correction of data entry errors should be defined.
- Original data entries should be readable and the individual(s) making the corrections should be clearly identified.

**Regulatory Requirement and Guidelines:** 40 CFR Part 122.41 (j)(1)(2)(3) *Monitoring and Records*. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The NPDES Compliance Inspection Manual states on pgs. 7-10 & 7-11 the following: An analytical laboratory must have a system for uniformly recording, correcting, processing, and reporting data.

## 7. FLOW MEASUREMENT

The facility influent flow was measured by an 8" inline magmeter (Model AM 325DM). The facility's effluent flow was also measured by an inline magmeter. The effluent flow meter was calibrated on a yearly basis. No primary flow measurement system was observed at the plant.

## 8. OPERATIONS AND MAINTENANCE

One certified class II operator and one trainee staffed the WWTP approximately eight hours per day, five days per week, and several hours on weekends. Maintenance activities were performed by the operators, maintenance staff, or contractors as needed. The WWTP has been affected by infiltration/inflow problems, with an estimated increase influent flow of 300,000 to 500,000 gallons during rainfall events (See Photo 1, page 12). One deficiency was noted.

### Deficiency:

- The mechanical aerator of the sludge digester was out of service (See Photo 3, page 8).

**Regulatory Requirement:** The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control and related appurtenances which are installed or used by the permittee to achieve compliance with the conditions of this permit (*40 CFR, Part 122.41, (e) and NPDES Permit MS0020117 Narrative Requirements: T-28*).

### Suggestion:

- The mechanical aerator propeller must be repaired as soon as possible.
- The city should establish plans to correct infiltration/inflow problems in order to reduce and eliminate SSOs.

## 9. SLUDGE HANDLING

The East Meridian POTW produced approximately fourteen wet metric tons of sludge per month from the plant's regular operation. The sludge is classified as Class B sludge. Sludge is treated in an 80,000-gallon aerobic sludge digester followed by dewatering in a belt filter press. The chief operator stated that the belt filter press is used approximately ten times per year. Breaux Services Incorporated disposes treated sludge by land application. Breaux Services operates a land farm that is authorized by Permit No. SW0350030431.

## 10. SAMPLING REVIEW

The permittee collected samples according to the sampling frequencies and sample types described in the permit. Effluent grab samples were collected for pH and dissolved oxygen (DO).

Table 1 describes the composite samples collected at the plant's influent and effluent locations.

**Table 1: Composite Sample Collection and Parameters**

<b>Location</b>	<b>Equipment (Parameters/Temperature)</b>	<b>Aliquot</b>	<b>Interval</b>
Influent (Collected at headworks)	Composite Samples collected using an ISCO 6712 refrigerated automatic sampler for CBOD <sub>5</sub> and TSS, composite samples temperature- 5°C	75 ml	Composite sample- 24 hr period
Outfall 201 (effluent, collected after final treatment)	Composite Samples collected using an ISCO 6712 refrigerated automatic sampler for CBOD <sub>5</sub> , TSS, TN, TP, composite samples temperature- 5°C	240 ml	Composite sample- 8 hr period

During the inspection, the plant operator conducted a settlometer test. The test results were 200 ml/L for both diluted and undiluted tests. Settlometer test results under 300 ml/L showed a rapid settling rate, associated with an older over-oxidized sludge.

Several deficiencies were noted during the inspection.

**Deficiency:**

- The influent automatic sampler collected 75 ml per sample aliquot. The amount collected was less than the required 100 ml sample aliquot for peristaltic automatic samplers.

**Regulatory Requirement:** 40 CFR Part 122.41 (J)(1). *Monitoring and Records.* Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. For peristaltic automatic samplers, the individual sample aliquots must be at least 100 ml (NPDES, Compliance Inspection Manual, 2004).

**Deficiencies:**

- The influent composite sampler tubing appeared clogged.
- The phosphorus and ammonia-nitrogen samples collected at the plant were preserved with sulfuric acid (H<sub>2</sub>SO<sub>4</sub>) at the South Meridian POTW laboratory, approximately one to two hours after the time of collection. Samples should be preserved immediately after collection.

**Regulatory Requirement:** 40CFR part 122.41 (j) (1), Monitoring and Records: Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. The influent automatic sampler tubing should be properly maintained. The intake line should be checked regularly for rags and other debris that can cause clogging problems. Nutrients (total nitrogen, ammonia, phosphorus, etc.) samples should be preserved immediately after collection (40 CFR Part 136.3 Table IB, Standards Methods: Methods 4500-N<sub>org</sub>, 4500-P, and 4500-NH<sub>3</sub>).


## **11. EFFLUENT AND RECEIVING WATERS**

The final effluent was clear. There were no visible solids, oil sheens, or foam observed in the final effluent. At the time of the inspection, the East Meridian POTW was no longer directly discharging its effluent into the Sowashee Creek.

## **Appendix A: Photographic Log**

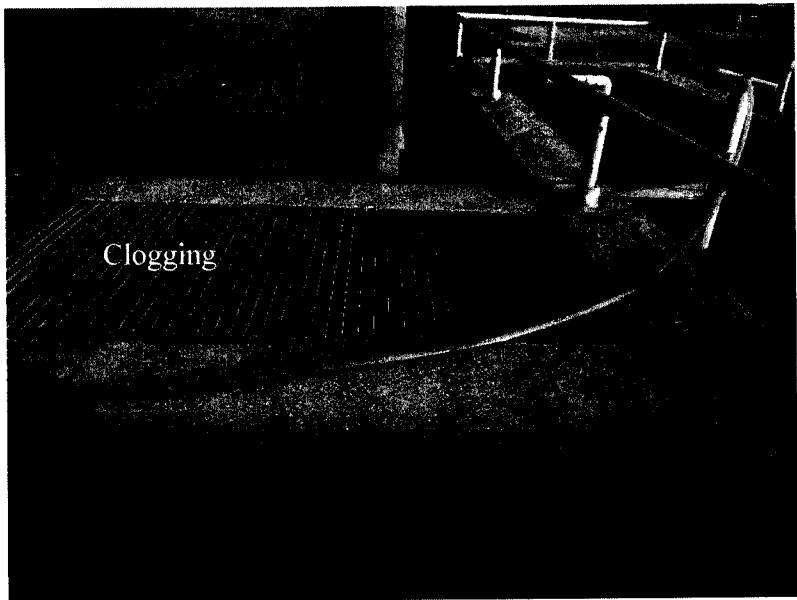


## PHOTOGRAPHIC LOG

<b>Photo taken by:</b> Jairo Castillo		<b>Project Name:</b> 15-0234 – East Meridian POTW Compliance Evaluation Inspection
<b>Photo No:</b> 1	<b>Date:</b> 03/18/2015	
<b>Direction Photo Taken:</b> East		
<b>Description:</b>  View of a sanitary sewer overflow, located northeast from the East Meridian POTW.		




## PHOTOGRAPHIC LOG

<b>Photo taken by:</b> Jairo Castillo		<b>Project Name:</b> 15-0234 – East Meridian POTW Compliance Evaluation Inspection
<b>Photo No:</b> 2	<b>Date:</b> 03/18/2015	
<b>Direction Photo Taken:</b> North		
<b>Description:</b>  View of the influent automatic sampler tubing. Tubing needed to be replaced.		

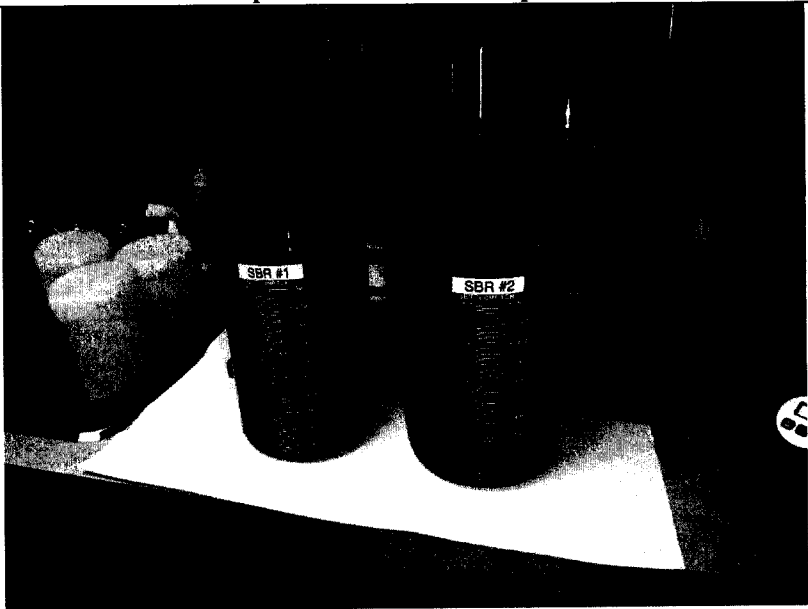


PHOTOGRAPHIC LOG

<b>Photo taken by:</b> Jairo Castillo		<b>Project Name:</b> 15-0234 – East Meridian POTW Compliance Evaluation Inspection	
<b>Photo No:</b> 3	<b>Date:</b> 03/18/2015		
<b>Direction Photo Taken:</b> North			
<b>Description:</b>  View of the aerobic digester. The mechanical aerator propeller needs to be repaired.			



PHOTOGRAPHIC LOG

<b>Photo taken by:</b> Jairo Castillo		<b>Project Name:</b> 15-0234 – East Meridian POTW Compliance Evaluation Inspection	
<b>Photo No:</b> 4	<b>Date:</b> 03/18/2015		
<b>Direction Photo Taken:</b> South			
<b>Description:</b>  View of Settrometer test results. Results were 200 ml/l for both diluted and undiluted tests.			

## **Appendix B: Correspondence**

**MERIDIAN**

CITY OF MERIDIAN

**FILE COPY**

A better longitude on life. February 6, 2014

**Mayor:**

PERCY BLAND, III  
(601) 485-1927  
FAX: (601) 485-1911

**Council Members:**

GEORGE M. THOMAS  
Ward 1

K. DUSTIN MARKHAM  
Ward 2

BARBARA HENSON  
Ward 3

KIM HOUSTON  
Ward 4

RANDY HAMMON  
Ward 5

COUNCIL CLERK  
(601) 485-1959  
FAX: (601) 485-1913

**CITY DEPARTMENTS:**

Chief Administrative Officer  
(601) 485-1929  
FAX: (601) 485-1911

Community Development:  
(601) 485-1910  
FAX: (601) 484-6813

Finance and Records:  
(601) 485-1946  
FAX: (601) 485-1979

Fire:  
(601) 485-1922  
FAX: (601) 485-1035

Homeland Security:  
(601) 484-6890  
FAX: (601) 484-6895

Parks and Recreation:  
(601) 485-1802  
FAX: (601) 485-1851

Police:  
(601) 485-1841  
FAX: (601) 484-6832

Public Works:  
(601) 485-1920  
FAX: (601) 485-1864

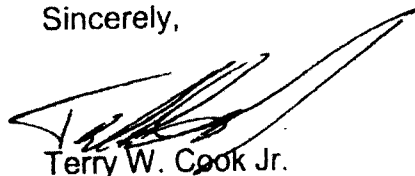
Mr. Bradley Crane  
Mississippi Department of Environmental Quality  
Environmental Permits Division  
P.O. Box 2261  
Jackson, MS 392259-2261

Dear Mr. Crane:

RE: East Meridian POTW  
NPDES Permit # MS0055735  
Lauderdale County

The East Meridian Wastewater Treatment Plant is no longer able to discharge to Sowashee Creek. The last time of discharge on permit MS0055735 was November 08 2013. During the rest of November and December the discharge pumps and piping that allowed for discharge to the creek were removed. The East Meridian plant can only internal discharge to Kemper (Coal Plant) or down to (Main) Meridian Wastewater Treatment plant to discharge into Sowashee under permit MS0020117. I am requesting that permit MS0055735 be terminated. If you have any questions, you may contact me at 601 485-1815.

Sincerely,



Terry W. Cook Jr.  
Chief Utility Plant Operator, Wastewater Treatment Plant

cc: Percy Bland, Mayor  
Mike McGrevey, CAO  
Hugh Smith, Public Works Director



**FILE COPY**

**STATE OF MISSISSIPPI**  
PHIL BRYANT  
GOVERNOR  
**MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY**  
TRUDY D. FISHER, EXECUTIVE DIRECTOR

May 16, 2014

Mr. Terry Cook Jr.  
East Meridian POTW  
PO Box 1430  
Meridian, Mississippi 39302-1430

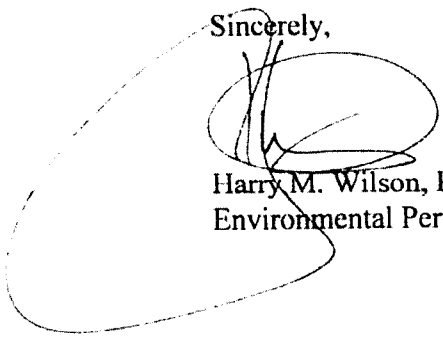
Dear Mr. Cook

Re: East Meridian POTW  
Lauderdale County  
Water Ref. No. MS0055735

The Environmental Permits Division is in receipt of your written request for termination of the above referenced environmental permit. It is our understanding that closure in accordance with the Closure Plan you submitted to our office is complete. Please be advised that as per the date of this letter, the above referenced environmental permit is hereby revoked.

If you have any questions regarding this matter or any future environmental permitting matters, please contact Jake Wallace at (601) 961-5171.

Sincerely,



Harry M. Wilson, P.E., DEE, Chief  
Environmental Permits Division

cc:

SESD Project ID No. 15-0234  
13262 PER20090001

END OF REPORT

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**MERIDIAN**

CITY OF MERIDIAN

A better longitude on life.

July 31, 2014

**Mayor:**

PERCY BLAND, III  
(601) 485-1927  
FAX: (601) 485-1911

**Council Members:**

GEORGE M THOMAS  
Ward 1

K. DUSTIN MARKHAM  
Ward 2

BARBARA HENSON  
Ward 3

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Ward 4

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**Police:**  
(601) 485-1841  
FAX: (601) 484-6832

**Public Works:**  
(601) 485-1920  
FAX: (601) 485-1864

Sara Schiff  
Environmental Engineer  
Clean Water Enforcement Branch  
US EPA – Region 4  
61 Forsyth Street, SW  
Atlanta, GA 30303

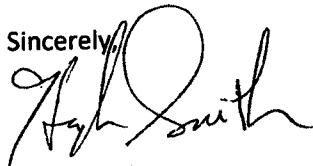
Dear Ms. Schiff:

While attempting to compile a comprehensive listing of SSO's, which was included in our response letter dated July 18, 2014, discrepancies were identified among the City's list of SSO's, the Mississippi Department of Environmental Quality's (MDEQ) list of SSO's, and the SSO Reporting Forms provided to MDEQ. The City of Meridian is committed to providing your agency with the most accurate data possible from the three sources of information referenced.

Therefore, subsequent to the submittal of our July 18<sup>th</sup> response letter, we continued an exhaustive effort to collect and compile all available SSO data in order to generate a true comprehensive finalized listing of SSO events. As indicated in our July 18<sup>th</sup> response letter, please accept the attached spreadsheet as the complete and final list of SSO occurrences from September, 2008 through May 6, 2014.

We look forward to the opportunity to convene face to face and discuss the most appropriate approach for improving our city's wastewater system.

Sincerely,



Hugh Smith  
Public Works Director

HS/ph

Attachment

601 23rd Avenue  
Post Office Box 1430  
Meridian, MS 39302-1430  
[www.meridianms.org](http://www.meridianms.org)

2014 AUG 04 14:08 CWFEE



**City of Meridian, Mississippi**  
List of SSOs from September 2008 to May 6, 2014

Date SSO Event Report Received by MDEQ	SSO Reporting		City Notified of SSO Event		SSO Ceased		Location of SSO		Ultimate Destination of SSO	Volume of SSO, (gal) (approx.)	Cause of SSO	Corrective Actions to Stop SSO	Corrective Action to Prevent Future SSOs	Miscellaneous Information
	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
1/12/2009			NOT AVAILABLE	12/29/2008	NOT AVAILABLE	1/12/2009	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	15,000,000	DUE TO CONTINUOUS RAINY DAYS, PLANT REACHED MAXIMUM TREATMENT CAPACITY SO EXCESS WAS DIVERTED TO EQ BASINS	ONCE THE INCLEMENT WEATHER SUBSIDED, INFLUENT FLOW DECREASED AND PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	RECORDED FROM NPDES EXCEEDANCE LETTER TO MDEQ
3/20/2009	✓		6AM	3/16/2009	4PM	3/16/2009	HAMILTON AVENUE	MANHOLE	SOWASHEE CREEK	6,500	POWER OUTAGE AT WASTEWATER TREATMENT PLANT & RAINFALL OF 2 INCHES	MS POWER HAD ELECTRICAL COMPONENTS SHIPPED OVERNIGHT TO CORRECT PROBLEM	PARTS INSTALLED BY MS POWER	
3/23/2009	✓		3PM	3/18/2009	6PM	3/20/2009	WEST OF 29TH AVENUE & NORTH OF ST. PAUL STREET, IN THE WOODS	HOLE IN PIPE	SOWASHEE CREEK	12,000	HOLE IN PIPE, COLLAPSED PIPE	DEBRIS REMOVED FROM PIPE WITH FLUSH TRUCK, CHLORINE TABLETS ADDED TO OVERFLOW	COLLAPSED PIPE REPAIRED	
5/4/2009	✓		NOT AVAILABLE	3/16/2009	NOT AVAILABLE	4/7/2009	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	160,000	18", FAILURE OF PIPE DOWN STREET THAT BLOCKED & RESTRICTED FLOW - 4.5 INCHES OF RAINFALL	MISCELLANEOUS LINE REPAIRS ON 24" PIPE. CREW CLEANED UP DEBRIS AND LIME WAS SPREAD OVER ENTIRE AREA	PLAN TO UPGRADE 24" LINE TO 36" LINE TO PREVENT FUTURE SSOs.	CITY OF MERIDIAN BYPASS REPORT INCLUDED SUPPLEMENTAL REPORT OF EVENT
INFO NOT AVAILABLE	✓		10:30AM	5/15/2009	2PM	5/15/2009	HAMILTON AVENUE	MANHOLE	SOWASHEE CREEK	85,000	EXCESSIVE RAINFALL - 3.5 INCHES TO 4 INCHES	DEBRIS REMOVED AND DISINFECTED AREA	NO INFORMATION PROVIDED	
1/14/2010	✓		10:30AM	12/18/2009	2PM	12/21/2009	HAMILTON AVENUE	MANHOLE	SOWASHEE CREEK	170,000	EXCESSIVE RAINFALL - 3.5 INCHES TO 4 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
1/8/2010			NOT AVAILABLE	12/17/2009	NOT AVAILABLE	1/8/2010	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	19,430,000	DUE TO CONTINUOUS RAINY DAYS AND PORTION OF MAIN PLANT BEING OFFLINE, PLANT WAS FORCED TO DIVERTED PORTION OF NORMAL FLOW TO EQ BASINS	ONCE PORTION OF MAIN PLANT WAS BROUGHT BACK ONLINE, PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	RECORDED FROM NPDES EXCEEDANCE LETTER TO MDEQ
1/19/2010	✓		12PM	1/13/2010	10AM	1/14/2010	FRED CLAYTON ROAD	PRESSURE LINE	LOST HORSE CREEK	290,000	BROKEN LINE	REPAIRED LINE	REPAIRED LINE	
1/24/2010	✓		NOT AVAILABLE	2/11/2010	NOT AVAILABLE	2/24/2010	4001 NEWELL ROAD	MANHOLE	SOWASHEE CREEK	170,000	GREASE AND ROOTS IN MANHOLE, 3+ INCHES OF RAIN AND 4 INCHES OF SNOW	FLUSHED LINE	CLEANED ROOTS FROM MANHOLE AND REPAIRED PIPE	
2/22/2010			NOT AVAILABLE	FEB. 2010	NOT AVAILABLE	2/22/2010	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	21,000,000	PART OF MAIN PLANT OFFLINE DUE TO PUMP REPAIRS, RESULTING IN DIVERSION TO EQ BASINS	ONCE PORTION OF MAIN PLANT BROUGHT BACK ONLINE FOLLOWING INSTALLATION OF NEW MOTOR ON PRIMARY SLUDGE PUMPS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	RECORDED FROM NPDES EXCEEDANCE LETTER TO MDEQ
3/15/2010	✓		MIDNIGHT	3/10/2010	NOT AVAILABLE	NOT AVAILABLE	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	75,000	EXCESSIVE RAINFALL - 2+ INCHES	CITY CREWS WORKING ON PROBLEM AT CHIP MILL	PLANS ARE BEING PUT IN PLACE TO INCREASE CAPACITY IN LINE	
3/23/2010	✓		MIDNIGHT	3/10/2010	9-45AM	3/16/2010	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	95,000	EXCESSIVE RAINFALL - 2+ INCHES	CITY CREWS WORKING ON PROBLEM AT CHIP MILL	PLANS ARE BEING PUT IN PLACE TO INCREASE CAPACITY IN LINE	
3/15/2010	✓		2:33PM	3/12/2010	7PM	3/15/2010	HWY 45 & HWY 39	RAISED MANHOLE	SOWASHEE CREEK	200,000	HIGH RAINFALL & MANHOLE INFILTRATION	REPAIR MANHOLE	CITY CREWS WORKING ON CHIPMILL PROBLEM	
3/24/2010			11AM	3/24/2010	2PM	3/24/2010	SOWASHEE STREET (BEHIND MISSISSIPPI MUSIC)	MANHOLE	TRIBUTARY OF SOWASHEE CREEK	NO INFORMATION AVAILABLE	NO INFORMATION AVAILABLE	CITY CREWS COLLECTED DEBRIS, EXCAVATED AFFECTED SOIL, AND LIMED IMPACTED AREA	NO INFORMATION PROVIDED	INFORMATION RECORDED FROM MARCH 25, 2010 MEMORANDUM FROM MDEQ

Date SSO Event Report Received by MDEQ	SSO Reporting		City Notified of SSO Event		SSO Ceased		Location of SSO		Ultimate Destination of SSO	Volume of SSO, (gal) (approx.)	Cause of SSO	Corrective Actions to Stop SSO	Corrective Action to Prevent Future SSOs	Miscellaneous Information
	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
MAR. 2010			NOT AVAILABLE	MAR. 2010	NOT AVAILABLE	MAR. 2010	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	51,050,000	DUE TO CONTINUOUS RAINY DAYS AND PORTION OF MAIN PLANT BEING OFFLINE, PLANT WAS FORCED TO DIVERTED PORTION OF FLOW TO EQ BASINS	ONCE PORTION OF MAIN PLANT WAS BROUGHT BACK ONLINE, PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	
11/24/2010	✓	✓	7AM	11/24/2010	10:30AM	11/24/2010	26TH STREET/2606 EDGEWOOD DRIVE	MANHOLE	SOWASHEE CREEK	80,000	ROOTS IN MANHOLE	FLUSH TRUCK 'SHOT LINE' & OPEN IT	CREW CUT ROOTS OUT OF MANHOLE	FULL REPORT INCLUDES PICTURES
1/13/2011	✓		3AM	1/7/2011	8AM	1/7/2011	3900 OLD HWY 45 N.	MANHOLE	UNSPECIFIED	40,000	POWER FAILURE AT PLANT	RESET MAIN POWER BREAKER	NEW GROUND TO BLOWER MOTOR	
2/10/2011	✓	✓	NOT AVAILABLE	1/31/2011	NOT AVAILABLE	2/10/2011	HILLCREST DRIVE/BROADHEAD PROPERTY	MANHOLE	UNSPECIFIED	25,000	TREE ROOTS	SPREAD LIME OVER AREA	PLANS TO REPLACE MANHOLE & REMOVE TREE THIS WEEK - WEATHER PERMITTING	FULL REPORT INCLUDES PICTURES
2/15/2011	✓		1PM	2/11/2011	9AM	2/14/2011	HYUNDAI HWY 39	MANHOLE	SOWASHEE CREEK	4,000	GREASE IN MANHOLE	FLUSHED LINES	RED HOT COMPOUND USED TO CLEAN LINE	
2/17/2011	✓		10:30AM	2/17/2011	11:30AM	2/17/2011	SHUMATE ROAD	MANHOLE	UNSPECIFIED	300	GREASE BLOCKAGE	FLUSHED LINES, RED HOT COMPOUND USED TO CLEAN LINE	LOCATION ADDED TO A BI-WEEKLY FLUSHING SCHEDULE	
3/10/2011	✓	✓	10PM ON SSO, 2AM CITY	3/8/2011	2AM	3/9/2011	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	8,400	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/10/2011	✓	✓	8PM	3/8/2011	6PM	3/10/2011	HWY 11/80 & RUSSELL DRIVE ON 8 INCH LINE THAT CONNECTS TO A 24 INCH LINE, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	229,950	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/10/2011	✓	✓	8PM	3/8/2011	6PM	3/10/2011	HWY 11/80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	65,000	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/24/2011			NOT AVAILABLE	3/11/2011	NOT AVAILABLE	3/11/2011	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	9,800,000	PLANT WAS FORCED TO DIVERTED PORTION OF FLOW TO EQ BASINS	ONCE INFLUENT FLOW DECREASED, PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	
4/6/2011	✓		4AM	4/4/2011	7:30AM	4/4/2011	3900 OLD HWY 45 S.	INFLUENT LIFT STATION	UNSPECIFIED	25,000	POWER FAILURE	RESET MAIN POWER BREAKER	ADJUSTED ELECTRICAL PANEL AND GROUND FAULT SENSORS	
4/29/2011	✓	✓	5PM	4/28/2011	8PM	4/28/2011	HWY 11/80 AT STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	225	1&1, 3 INCHES OF RAIN, AS WELL AS PREVIOUS RAIN IN PAST 2 WEEKS	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
7/14/2011	✓	✓	2PM	6/16/2011	2PM	7/6/2011	15TH PLACE	MANHOLE	SOWASHEE CREEK	250,000	COMBINATION OF ROOTS & GREASE, A COLLAPSED LINE	JETTED & BROKE THE BLOCKAGE, REPLACED DAMAGED LINE	REPLACED LINE	NOTIFIED OF BAD SEWER ODOR ON JULY 5, 2011
7/26/2011	✓		2PM	7/25/2011	5PM	7/25/2011	HWY 11/80 CRACKER BARREL	MANHOLE	SOWASHEE CREEK	1,800	HIGH RAINFALL OF 1.5 INCHES	CLEANED DEBRIS AND SANITIZED	NO INFORMATION PROVIDED	
7/26/2011	✓		2PM	7/25/2011	5PM	7/25/2011	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	2,700	HIGH RAINFALL OF 1.5 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
7/26/2011	✓	✓	3:30PM	7/25/2011	4:30PM	7/25/2011	56TH AVENUE @ ROYAL ROAD	MANHOLE	GALLAGHER CREEK	1,000	EXCESSIVE RAINFALL - 1 INCH	CLEANED DEBRIS (SMALL AMOUNTS OF PAPER & GREASE) & SPRAYED DISINFECTANT OVER ENTIRE AREA	NO INFORMATION PROVIDED	
11/18/2011	✓	✓	7AM	11/16/2011	1PM	11/16/2011	OLD 8TH STREET & 70TH PLACE	PUMP STATION	SOWASHEE CREEK	12,000	PUMP FAILURE	CLEANED DEBRIS & USED DISINFECTANT TO KILL BACTERIA IN THE AREA	PUMP REPAIRED	FULL REPORT INCLUDES PICTURES
11/21/2011	✓	✓	2:30PM	11/18/2011	10:30PM	11/18/2011	29TH AVENUE, SOUTH BANK, APPROXIMATELY 200 YARDS WEST OF 29TH AVENUE BRIDGE/RR	MANHOLE	SOWASHEE CREEK	48,000	CAVE-IN, STORMWATER DRAIN	DIRT REMOVED TO ALLOW SEWAGE TO FLOW, TRENCH BOX PUT INTO PLACE TO PROTECT THE LINE	LINE WILL BE REPLACED WITH A LARGER LINE	FULL REPORT INCLUDES PICTURES
12/2/2011		✓	10AM	11/30/2011	1AM	12/1/2011	29TH AVENUE @ RR	MAIN LINE	SOWASHEE CREEK	700,000	PUMP FAILURE & SEPARATION IN LINE	SWITCHED OUT PORTABLE PUMP, REPAIRED LINE, LIME WAS SPREAD OVER ENTIRE AREA	REPAIRED LINE AND SWITCHED OUT PUMP	FULL REPORT INCLUDES PICTURES

Date SSO Event Report Received by MDEQ	SSO Reporting		City Notified of SSO Event		SSO Ceased		Location of SSO		Ultimate Destination of SSO	Volume of SSO, (gal) (approx.)	Cause of SSO	Corrective Actions to Stop SSO	Corrective Action to Prevent Future SSOs	Miscellaneous Information
	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
1/3/2012	✓	✓	10AM	12/29/2011	2:30PM	12/29/2011	11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	5,400	GREASE BLOCKAGE	GREASE REMOVED BY FLUSH TRUCK, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/27/2012	✓		10AM	1/26/2012	2PM	1/26/2012	5310 OVERBROOK LANE	MANHOLE	UNSPECIFIED	10 gpm	GREASE BLOCKAGE & INFLOW	JETTED LINE TO BREAK BLOCKAGE & RESUME NORMAL FLOW, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	JETTED LINE TO BREAK BLOCKAGE & RESUME NORMAL FLOW	
1/27/2012	✓		10AM	1/26/2012	5PM	1/26/2012	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	20 gpm	INFLOW - 3 INCHES OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/27/2012	✓		10AM	1/26/2012	6PM	1/26/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	20 gpm	INFLOW - 3 INCHES OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/27/2012	✓		9AM	1/26/2012	2PM	1/26/2012	26TH STREET & 40TH AVENUE	MAIN LINE	NO INFORMATION PROVIDED	4,500	INFLOW - 3 INCHES OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
2/3/2012	✓		8AM	1/27/2012	10AM	1/30/2012	3109 GRANDVIEW AVENUE	LINE	SOWASHEE CREEK	15gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
2/3/2012	✓		1PM	1/30/2012	2PM	1/31/2012	5525 CHEROKEE ROAD	MANHOLE	SOWASHEE CREEK	10 gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
2/3/2012	✓		11AM	2/2/2012	6PM	2/2/2012	600 FRONTAGE ROAD	LINE	SOWASHEE CREEK	60 gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
2/3/2012	✓		11AM	2/2/2012	5PM	2/2/2012	2900 SAINT PAUL STREET	LINE	SOWASHEE CREEK	60 gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
3/2/2012	✓		10AM	2/28/2012	6PM	2/28/2012	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	9,600	INFLOW - 1 INCH OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
3/2/2012	✓		10AM	2/28/2012	8:30AM	2/29/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	168,750	GREASE BLOCKAGE	GREASE REMOVED BY FLUSH TRUCK, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
3/26/2012			4PM	3/21/2012	7AM	3/24/2012	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	96,000	EXCESSIVE RAINFALL - 3.5 INCHES	WORK ON PROBLEM AT CHIP MILL	PLANS TO REPLACE OLD SEWER LINE, INCREASE NEW LINE	
3/26/2012			4PM	3/21/2012	7AM	3/24/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	65,000	EXCESSIVE RAINFALL - 3.5 INCHES	CLEANED UP	PLANS TO INCREASE LINE AT CHIP MILL	
3/26/2012			4PM	3/21/2012	7AM	3/24/2012	HWY 11/80 EAST & RUSSELL STREET, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	100,000	EXCESSIVE RAINFALL - 3.5 INCHES	NO INFORMATION PROVIDED	PLANS TO INCREASE LINE AT CHIP MILL	
4/2/2012	✓	✓	10:30AM	3/29/2012	11:15AM	3/29/2012	HWY 11/CELOTEX	MANHOLE	SOWASHEE CREEK	600,000	PUMP STATION FAILURE	PUMP WAS RESET, LIME WAS SPREAD OVER THE ENTIRE AREA	PUMP WAS RESET	
6/25/2012		✓	7AM	6/25/2012	8:30AM	6/25/2012	HWY 39, NUMBER 1 LIFT STATION	PUMP STATION	SOWASHEE CREEK	50,000	POWER FAILURE	RESTORED POWER, COLLECTED ALL DEBRIS, SPREAD LIME OVER THE ENTIRE AREA	POWER RESTORED TO PUMP STATION	
8/1/2012	✓	✓	8PM	7/26/2012	8:30AM	7/27/2012	29TH AVENUE	MANHOLE	NONE	35,000	BROKEN LINE	REPAIRED LINE, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	REPAIR OF LINE	
8/20/2012		✓	3:30PM	8/18/2012	6PM	NOT AVAILABLE	TOMMY WEBB DRIVE	MANHOLE	SOWASHEE CREEK	200,000	18", 2 INCHES OF RAINFALL	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
12/17/2012	✓		10AM	12/17/2012	8PM	12/17/2012	CHIP PICKERING DRIVE AND STENNIS DRIVE	PIPE	SOWASHEE CREEK	320,000	BROKEN PIPE	STOPPED PUMP TO CEASE FLOW, REPAIRED PIPE AND SPREAD LIME OVER ENTIRE AREA	REPAIRED PIPE LINE	
1/4/2013	✓	✓	3:30PM	12/28/2012	NOT AVAILABLE	12/29/2012	HWY 45 SOUTH, BEHIND M5 POWER	MANHOLE	SOWASHEE CREEK	350,000	BLOCKAGE	FLUSHED LINE & CLEANED DEBRIS, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	

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	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
1/4/2013	✓	✓	8PM	12/29/2012	11PM	12/29/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	18,000	EXCESSIVE RAINFALL	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/4/2013	✓	✓	8PM	12/30/2012	11PM	12/30/2012	SOWASHEE STREET	MANHOLE	DITCH TO SOWASHEE CREEK	1,800	EXCESSIVE RAINFALL - 1.5 INCHES	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/14/2013	✓	✓	7PM	1/12/2013	6AM	1/13/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	13,200	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
1/14/2013	✓	✓	6PM	1/12/2013	NOT AVAILABLE	1/14/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	72,000	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS	NO INFORMATION PROVIDED	ONGOING
1/14/2013	✓	✓	6PM	1/12/2013	6AM	1/13/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	10,800	EXCESSIVE RAINFALL - 2 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
1/28/2013	✓	✓	10AM	1/16/2013	10AM	1/19/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	51,000	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	10AM	1/16/2013	8AM	1/17/2013	HWY 11/80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	66,000	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	10AM	1/16/2013	8AM	1/21/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	142,000	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	10AM	1/16/2013	12NOON	1/23/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	151,200	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	1PM	1/23/2013	7PM	1/23/2013	29TH AVENUE, MULTI-COUNTY	MANHOLE	SOWASHEE CREEK	1,500	BLOCKAGE IN SEWER LINE	COLLECTED DEBRIS, SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	HWY 45 NORTH, ENTRANCE TO EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	8,100	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS, SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	2,700	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS, SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	HWY 11/80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	10,800	EXCESSIVE RAINFALL - ABOUT 2 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	HWY 11/80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	5,400	EXCESSIVE RAINFALL - ABOUT 2 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
2/11/2013	✓	✓	5PM	2/6/2013	2PM	2/7/2013	CHIP PICKERING DRIVE	MAIN LINE	SOWASHEE CREEK	300,000	BREAK IN LINE	SPREAD LIME OVER AREA	REPAIRED LINE	
2/14/2013	✓		1PM	2/13/2013	10PM	2/13/2013	65TH AVENUE (MAPLE GAS TERMINAL)	MANHOLE	SOWASHEE CREEK	10,800	EXCESSIVE RAINFALL - 6.74 INCHES BETWEEN 2/10/13 TO 2/12/13	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
2/14/2013	✓		9AM	2/12/2013	11PM	2/12/2013	40TH AVENUE & 26 STREET	MANHOLE	SOWASHEE CREEK	2,520	EXCESSIVE RAINFALL - 2.9 INCHES 2/11/2013 TO 2/12/2013	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		9AM	2/12/2013	11PM	2/12/2013	26 & 41ST STREET	MANHOLE	SOWASHEE CREEK	4,200	EXCESSIVE RAINFALL - 2.9 INCHES 2/11/2013 TO 2/12/2013	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	NOT AVAILABLE	2/13/2013	HWY 45 NORTH (EAST MERIDIAN WWTP ENTRANCE)	MANHOLE	SOWASHEE CREEK	42,000	EXCESSIVE RAINFALL - 6.74 INCHES BETWEEN 2/10/13 TO 2/12/13	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	6PM	2/13/2013	HWY 11 & 80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	70,800	EXCESSIVE RAINFALL - 6.74 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	6PM	2/13/2013	HWY 11 & 80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	84,000	EXCESSIVE RAINFALL - 6.74 INCHES BETWEEN 2/10/13 TO 2/12/13	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		6PM	2/11/2013	10PM	2/12/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	4,800	EXCESSIVE RAINFALL - 2.9 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	10AM	2/11/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	4,200	EXCESSIVE RAINFALL - 3.48 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	IDENTIFY I&I SPOTS IN LINE AND MAKE SPOT REPAIRS, TWO BREAKS AND ONE MANHOLE HAVE BEEN IDENTIFIED, REPAIRS BEGAN 2/14/2013 ON THESE	

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2/14/2013	✓		8PM	2/10/2013	10AM	2/11/2013	HWY 145 & SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	1,680	EXCESSIVE RAINFALL - 3.48 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		1PM	2/13/2013	2PM	2/13/2013	OLD 8TH STREET	MANHOLE	SOWASHEE CREEK	300	PUMP FAILURE DUE TO RAGS PREVENTING IMPALERS FROM TURNING	COLLECTED DEBRIS AND SPREAD LIME OVER AREA, PULLED PUMP TO BE REPAIRED	REPAIR OF PUMP	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	HWY 11/80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	6,000	EXCESSIVE RAINFALL - 1.5 INCHES	SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	HWY 11/80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	3,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	PARKWAY BOULEVARD	MANHOLE	SOWASHEE CREEK	600	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	900	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	65TH AVENUE	MANHOLE	DITCH TO SOWASHEE CREEK	3,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	8PM	3/12/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	9,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/21/2013	✓	✓	6PM	2/17/2013	10AM	2/18/2013	100 TO 65TH AVENUE	MANHOLE	SOWASHEE CREEK	10,000	EXCESSIVE RAINFALL - 8 INCHES THE WEEK PRIOR, PIPE RESTRICTION DUE TO JOINT FAILURE ALLOWING DIRT INTO SEWER LINE	REPAIRED AND WASHED LINE, COLLECTED DEBRIS AND SPREAD LIME OVER AREA	LINE REPAIRED AND WASHED	
3/21/2013	✓	✓	10PM	3/18/2013	11AM	3/19/2013	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	177,000	BREAK IN LINE	SHUT OFF PUMP STATION	REPAIRED LINE	
3/21/2013	✓	✓	9AM	3/18/2013	6PM	3/19/2013	HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	3,800	INFLOW & PIPE RESTRICTION	JETTED LINE TO ALLOW MORE FLOW THROUGH LINE, COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/21/2013	✓	✓	X	3/19/2013	1PM	3/19/2013	34TH & 10TH AVENUE	LINE	SOWASHEE CREEK	60,000	BANK COLLAPSED SHIFTING THE LINE, WHICH CAUSED THE RUBBERS IN PIPE JOINTS TO PUSH OUT	REPAIRED LINE	REPAIRED LINE	
3/29/2013	✓	✓	3PM	3/24/2013	4:30PM	3/24/2013	4524 HWY 39 NORTH	MANHOLE	SOWASHEE CREEK	180	GREASE BLOCKAGE	JETTED LINE, COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/29/2013	✓	✓	11:30AM	3/24/2013	2PM	3/27/2013	HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	8,940	I&I, PIPE RESTRICTION	COLLECTED DEBRIS	NO INFORMATION PROVIDED	
5/1/2013	✓	✓	7AM	5/1/2013	X	X	EAST MERIDIAN WWTP, HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	55,000	EXCESSIVE RAINFALL - 1.5 INCHES	REMOVE DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
5/13/2013	✓	✓	7:30AM	5/10/2013	12PM	5/11/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	60,000	EXCESSIVE RAINFALL - 2 INCHES	REMOVE DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
5/13/2013		✓	7:30AM	5/10/2013	12PM	5/11/2013	EAST MERIDIAN WWTP, HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	75,000	EXCESSIVE RAIN - 2 INCHES	LIME AREA	NO INFORMATION PROVIDED	
6/18/2013			9AM	3/25/2013	10AM	3/25/2013	27TH STREET AND 45TH AVENUE	PUMP STATION	SOWASHEE CREEK	4,500	PUMP FAILURE	STATION BROUGHT BACK ONLINE BY CITY PERSONNEL	REPLACED CONTROLLER PANEL AT STATION	
6/18/2013			9AM	6/17/2013	11AM	6/17/2013	CHIP PICKERING DRIVE	LINE	SOWASHEE CREEK	147,000	BLOWOUT IN PRESSURE LINE	REPAIRED LINE	REPAIR OF LINE	
7/10/2013	✓		9:30AM	5/13/2013	1:30AM	5/17/2013	29TH AVENUE & SOWASHEE CREEK	24" SEWER LINE	SOWASHEE CREEK	120,000	BLOCKAGE IN LINE	REPAIR SEWER LINE, FLUSHED LINE AND CLEANED UP DEBRIS, LIME PUT DOWN OVER AREA	AT THIS TIME, CITY LOOKING TO REPLACE ABOUT 200' OF 24" SEWER LINE	SSO REPORT TO DEQ INCLUDED ATTACHMENT
8/15/2013	✓	✓	12AM	8/13/2013	10:30AM	8/14/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	10,500	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
8/15/2013	✓	✓	12AM	8/13/2013	9AM	8/14/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	13,200	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
10/7/2013	✓		10PM	10/3/2013	9AM	10/4/2013	COTTON GIN ROAD	PUMP STATION	DITCH TO SOWASHEE CREEK	10,000	PUMP FAILURE	COLLECTED DEBRIS AND DISINFECTED AREA	REPAIRED PUMP	

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11/13/2013	✓		11PM	11/4/2013	1PM	11/5/2013	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	262,000	BREAK IN SEWER LINE	SPOT REPAIR OF LINE, COLLECTED DEBRIS AND DISINFECTED AREA	LINE REPAIRED	
11/13/2013	✓		X	11/9/2013	2:45PM	11/12/2013	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	968,000	BREAK IN LINE	SPOT REPAIR OF LINE, COLLECTED DEBRIS AND DISINFECTED AREA	LINE REPAIRED	
1/13/2014	✓		9AM	1/9/2014	2:15PM	1/9/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	132,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
1/21/2014	✓		8AM	1/17/2014	12NOON	1/17/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	127,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
1/28/2014	✓		2AM	1/27/2014	2PM	1/27/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	145,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
2/4/2014	✓		8AM	1/30/2014	2PM	1/30/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	130,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
2/5/2014	✓		10PM	2/5/2014	12:30PM	2/5/2014	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	30-35 GALS	EXCESSIVE RAIN - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/5/2014	✓		10PM	2/4/2014	12:30PM	2/5/2014	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	40-50 GPM	EXCESSIVE RAIN - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/13/2014	✓		7AM	2/10/2014	2PM	2/10/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	140,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
2/18/2014	✓		2:30PM	2/15/2014	8PM	2/15/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	125,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
3/4/2014	✓		5AM	2/21/2014	3PM	2/21/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	147,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
3/14/2014	✓		7AM	3/10/2014	1:30PM	3/10/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	138,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
3/28/2014	✓		12AM	3/28/2014	ONGOING	ONGOING	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	30-35 GPM	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/28/2014	✓		12AM	3/28/2014	ONGOING	ONGOING	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	60,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/28/2014	✓		12AM	2/28/2014	ONGOING	ONGOING	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	45 GPM	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/8/2014	✓		8PM	4/4/2014	10PM	4/8/2014	HWY 11/80 EAST, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	200 GPM	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/8/2014	✓		5PM	4/13/2014	3PM	4/15/2014	HWY 11/80 EAST, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	408,000	EXCESSIVE RAINFALL - 5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		6PM	4/13/2014	2PM	4/16/2014	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	365,000	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		8PM	4/4/2014	7PM	4/9/2014	HWY 45 NORTH, EAST WWTP ENTRANCE	MANHOLE	SOWASHEE CREEK	535,000	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		3PM	4/13/2014	2PM	4/15/2014	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	211,500	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		8PM	4/4/2014	6PM	4/7/2014	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	315,000	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	

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## Armstrong, Kathy

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**From:** Schiff, Sara  
**Sent:** Wednesday, June 04, 2014 3:14 PM  
**To:** 'HughSmith@meridianms.org'  
**Subject:** Agenda for Tomorrow's Show Cause Teleconference  
**Attachments:** Meridian DMR data\_4-2009 to 3-2014 NOV.xlsx; Meridian Show Cause Agenda-6-5-14.docx

Hugh-

Hope you're having a great day. I've attached an agenda for tomorrow's call. Who all will be on the call from the City? We have a limited number of lines that can call into our teleconference line, so please let me know if you'll have more than 2 calling in. Just as a reminder, the call in number is:

404.562.9928 and the access code is 629928#

I'll be leaving my desk shortly, and I have a dentist appointment before our show cause, so if you need anything, please call my cell at 404.895.7933.

Thanks,

Sara Schiff  
Environmental Engineer  
Clean Water Enforcement Branch  
US EPA - Region 4  
61 Forsyth Street, SW  
Atlanta, GA 30303  
P: (404) 562-9870  
F: (404) 562-9729

### CONFIDENTIALITY NOTICE

This message is intended exclusively for the individual(s) or entity(ies) to which it is addressed. The communication may contain information that is proprietary, privileged, or confidential or otherwise legally exempt from disclosure. If you are not the named addressee, you are not authorized to read, print, retain, copy, or disseminate this message or any part of it. If you received this message in error, please notify the sender by e-mail and delete all copies of the message.

East WWTP - MS0055735			
Violation Type	Violation Information	Violation Code	Violation Date
<u>Effluent Violation</u>	001 A 01114 Lead, total recoverable Effluent Gross Season ID:0 C2	E90	9/30/2009
<u>Effluent Violation</u>	001 A 00310 BOD, 5-day, 20 deg. C Effluent Gross Season ID:0 Q2	E90	6/30/2011
<u>Effluent Violation</u>	001 A 00310 BOD, 5-day, 20 deg. C Effluent Gross Season ID:0 C3	E90	6/30/2011
<u>Effluent Violation</u>	001 A 00400 pH Effluent Gross Season ID:0 C3	E90	6/30/2011
<u>Effluent Violation</u>	001 A 00400 pH Effluent Gross Season ID:0 C3	E90	7/31/2011
<u>Effluent Violation</u>	001 A 00400 pH Effluent Gross Season ID:0 C3	E90	9/30/2011
<u>Effluent Violation</u>	001 A 00310 BOD, 5-day, 20 deg. C Effluent Gross Season ID:0 C3	E90	10/31/2011
<u>Effluent Violation</u>	001 A 00530 Solids, total suspended Effluent Gross Season ID:0 C2	E90	2/29/2012
<u>Effluent Violation</u>	001 A 81011 Solids, suspended percent removal Percent Removal Season ID:0 C1	E90	2/29/2012

**Show Cause Meeting Agenda  
EPA/MDEQ/City of Meridian, Mississippi  
June 5, 2014; 10:30 a.m. (Eastern)  
Teleconference**

**Call-In No.: 404-562-9928 (will accommodate up to 6 separate phone lines)**  
**Passcode: 629928#**

**I. Introductions – (All)**

**II. Summary of Concerns (EPA and MDEQ)**

- **Sanitary Sewer Overflows (SSOs)**
  - Unpermitted Discharges (SSOs reaching waters of the U.S.);
  - SSOs not reaching waters of the U.S. (South WWTP Permit Conditions T-28 – Proper Operation, Maintenance and Replacement and T-29 – Duty to Mitigate and East WWTP Permit Conditions T-27 – Proper Operation, Maintenance and Replacement and T-28 – Duty to Mitigate);
  - Capacity issues throughout the WCTS.
- **WWTP**
  - Basic maintenance concerns at the South WWTP;
  - East WWTP additional flow capacity.
- **Effluent Limit Exceedances**
  - See attached effluent limit exceedances spreadsheet.

**III. Response to Summary of Concerns (City of Greenville)**

- **Actions Taken by the City to Address EPA and MDEQ's Concerns**
- **Actions to be Taken by the City to Address EPA and MDEQ's Concerns**

**IV. Discussion of Resolution of Concerns (EPA)**

**V. Any Information Needs?**

- **Estimated Costs of Injunctive Relief (City to provide);**
- **Estimated Start and Completion Dates of Injunctive Relief (City to provide).**

**VI. Next Steps**

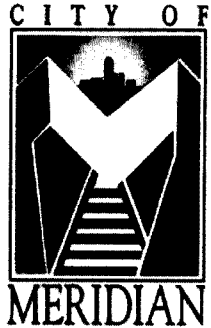
- The City to respond to the EPA's information request letter;
- Schedule next call/meeting.

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## **EMERGENCY RESPONSE AND CONTINGENCY PLAN FOR SANITARY SEWER SYSTEM**

**PUBLIC WORKS DEPARTMENT  
CITY OF MERIDIAN  
311 27<sup>TH</sup> STREET  
MERIDIAN, MS 39302**



## **EMERGENCY RESPONSE & CONTINGENCY PLAN FOR SANITARY SEWER SYSTEM**

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- 2.0 Purpose of Emergency Response Plan (ERP)
  - 2.1 Objectives
  - 2.2 Organization of Plan
  - 2.3 Definitions of Pertinent Technology
  - 2.4 Sewer Overflow and Pumping Station Overflow Investigation and Tracking
- 3.0 Overflow Response Procedure
  - 3.1 Receipt of Information Regarding a Sewer Overflow or Pumping Station Overflow
  - 3.2 Dispatch of Appropriate Crews to Site of Sewer Overflow
  - 3.3 Overflow Correction, Containment and Cleanup
    - 3.3.1 Responsibilities of Supervisor or Pumping Station Operator upon Arrival
    - 3.3.2 Response to Pump Station Failure
- 4.0 Monitoring/Sampling of Surface Waters Affected By Sewer Spills
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- 5.0 Public Advisory and Notification Plan
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- 6.0 Regulatory Agency Notification Plan
- 7.0 Media Notification Procedures
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  - 8.2 Review and Update of ERP

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Table 1 - SOO Response Tracking Protocol

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Figure 1 - Overflow Action Plan

Figure 2 - Sampling Activity Flow Chart

## APPENDICES

- A. Glossary
- B. Collection System Maintenance
- C. Policy Report on Sanitary Sewer Overflows
- D. Example Notices and Signage
- E. Estimating Sanitary Sewer Overflow Volume and HTH Requirements

## **1.0 INTRODUCTION**

The Meridian Public Works Department has developed a written Collection System Contingency Plan to adequately protect the health and welfare of persons in the event of any sewage overflow from the Meridian's wastewater collection and transmission systems.

## **2.0 PURPOSE OF THE EMERGENCY RESPONSE PLAN (ERP)**

The purpose of the Collection System Contingency and Emergency Response Plan (ERP) is to assure prompt and appropriate response to sewage spills, so that any adverse effects to public health, water quality, or customer service can be minimized. The ERP further includes provisions to ensure reports are made to the appropriate local, state and federal authorities. For the purposes of this ERP, "a confirmed sewage spill" is referred to as any of the following: "sewer overflow", "SSO", "overflow", "bypass" or "pumping station overflow." Amendments approved by the Public Works Director may be incorporated into the plan. Accordingly, users should make sure they are using the most recently updated plan.

### **2.1 OBJECTIVES**

The primary objectives of the ERP are (1) the protection of public health and the environment, (2) compliance with requirements governing the procedures for managing sewer overflows, and (3) minimization of the risk of enforcement actions against the City of Meridian.

Additional objectives of the ERP are as follows:

- Protect wastewater treatment plant and collection system personnel;
- Protect private and public property adjacent to the collection and treatment facilities;
- Protect the collection system, pumping stations, wastewater treatment facilities, and all appurtenances;
- Achieve customer service goals.

The ERP shall not supersede other City of Meridian emergency operations plans or Standard Operating Procedures (SOPs) unless determined and directed otherwise by the appropriate authority.

## **2.2 ORGANIZATION OF PLAN**

The key elements of the ERP are addressed individually:

- Section 3.0 Overflow Response Procedure
- Section 4.0 Monitoring/Sampling of Surface Waters Affected by Major Spills
- Section 5.0 Public Advisory Procedure
- Section 6.0 Regulatory Agency Notification Procedure
- Section 7.0 Media Notification Procedure
- Section 8.0 Distribution and Maintenance of ERP

## **2.3 DEFINITIONS OF PERTINENT TERMINOLOGY**

Appendix A is a glossary of selected terms used in the ERP, and for definitions of other relevant terms not necessarily used in the ERP but provided for additional background.

## **2.4 SEWER OVERFLOW AND PUMPING STATION OVERFLOW INVESTIGATION AND TRACKING**

A database that contains the specific details and the location of sewer collection line overflows and pumping station overflows will be maintained in the Lines-Maintenance Division of Public Works. The database will assist the Public Works Director and Assistant Public Works Director in developing capital-type corrective projects and to prioritize maintenance activities where chronic problems have been historically encountered.

After an overflow event, an investigative approach will be taken to establish the following criteria:

1. An investigative approach will be taken to determine the cause of a sewage overflow.
2. Right-of-ways and manholes will be inspected to determine the extent of the problem. These inspections will be conducted both upstream and downstream from the site of the sewage overflow.
3. Follow-up inspections will be performed at the site of a sewage overflow in order to determine the effectiveness of the corrective actions. Data will be captured on the Meridian's Work Order form. If no additional evidence of overflows is found, these inspections will be terminated.
4. After each sewage overflow, the Preventive Maintenance (PM) schedule for the affected sewer(s) for cleanings, inspections, etc., will be reconsidered in order to prevent similar future occurrences. The site of the sewage overflow will remain on an accelerated or more frequent PM schedule, if necessary, until it is reasonably determined that the site is no longer a risk for a future occurrence due to maintenance needs.
5. Where conditions that may pose a considerable risk for an overflow are known to exist, in the Wastewater Collection and Transmission System, it will be brought to the attention of management by field staff. Proactive measures will be taken to minimize the risk of overflows from occurring. Until the work order and physical inspection databases are fully integrated with the GIS mapping system to allow electronic queries to help locate other sites in the Wastewater Collection and Transmission System where similar overflow events may occur, City staff will be dependent on random discovery of sites based on a systematic evaluation of the wastewater collection system.
6. After the occurrence of a sewage overflow, notification of relevant parties will be conducted (if applicable) in order to prevent similar occurrences. Examples of relevant

parties would include employees and management of restaurants, manufacturers, construction sites, etc. if their actions contributed to an overflow. Notification would include information on City Ordinances applicable to the given parties and type of operation, what requirements must be met in order to comply with the given ordinance, and what measures should be taken to eliminate future overflows.

### **3.0 OVERFLOW RESPONSE PROCEDURE**

The Overflow Response Procedure presents a strategy for the City to mobilize labor, materials, tools and equipment to correct or repair and mitigate any condition which may cause or contribute to: 1) an unpermitted discharge (i.e., discharge to surface waters); and, 2) other sewer overflows and pumping station overflows which are successfully contained and present no threat to jurisdictional waters of the State (surface waters). The plan considers a wide range of potential system failures that could create a spill to surface waters and to structures and/or land surfaces.

#### **3.1 RECEIPT OF INFORMATION REGARDING A SEWER OR PUMPING STATION OVERFLOW**

A sewer overflow detected by City employees or by others during normal business hours should be reported by dialing 601-485-1976. This is the primary number used for receiving phone calls from the public of possible sewage overflows from the wastewater collection system and transmission system (e.g., sewer pipes and pump stations) and for notifying the appropriate personnel in the City.

After hours telephone calls from the public reporting possible sewage overflows and pumping station overflows are received by the City. The primary telephone number used for after hours reporting is 601-485-1975. The City office takes calls 24 hours per day, every day of the year.

- 1) The City shall obtain information offered by the caller and seek other relevant information regarding the overflow, including:
  - a. Time and date the call was received.
  - b. Specific location of possible sewer overflow.
  - c. Time possible overflow was noticed by the caller.
  - d. Caller's name and phone number.
  - e. Observations of the caller (e.g., odor, duration, back or front of property).
  - f. Whether overflow has reached water or is flowing towards a creek or river.
  - g. Whether the overflow has reached or is flowing towards a park, playground, schoolyard or other public access location.
  - h. Other relevant information that will enable the responding investigator and crews, if required, to quickly locate, assess and stop the overflow.
- 2) The City enters the overflow information into the database using the work order system and notifies the Lines-Maintenance Superintendent or designee of the Public Works Director.

City calls are handled as follows in order of priority, based on the degree of public access to the overflow location:

- Overflow caused by a rain event with/without immediate and direct public access.
  - Sewer Overflow or Pumping Station Overflow to a Creek or Dry Land with/without immediate and direct public access.
  - Cave In; Sewer Overflow or Pumping Station Overflow to Dry Land with/without immediate and direct public access where erosion of subsurface material has created unstable soil conditions.
- 3) During normal office hours, once notification of a sewage overflow is received, the Lines-Maintenance Superintendent will dispatch the appropriate Maintenance Crew for investigation. Confirmed sewage overflows are immediately reported back by the Crew Supervisor or designee.
  - 4) Sewage overflows detected by any personnel in the course of their normal duties shall be reported immediately to the Lines-Maintenance Department. The City shall record the relevant overflow information and immediately notify the appropriate officials and/or agencies.
  - 5) A Supervisor or trained personnel shall confirm any reported possible sewer spill or pumping station overflow. Until confirmed, the reported possible spill or overflow should be referred to as a "possible" spill or overflow, not as a "sewage overflow" or "un-permitted discharge".
  - 6) The Lines-Maintenance Superintendent or designee shall complete a Wastewater Bypass/Overflow Report form within 24 hours of confirming that the reported spill has reached a water of the state or dry land, including structures. Table 1 summarizes the sewage overflow and pumping station overflow response tracking protocol.
  - 7) When after hour notification of pump station overflows are received by City personnel. The plant operator on duty shall immediately convey all information regarding failures and overflows to the on-call Supervisor or Line-Maintenance Superintendent and they shall initiate the investigation and correction. Alarms due to equipment failure or power outage are reported electronically from some of the pumping stations. These alarms are reported to a Lines-Maintenance Technician and are investigated immediately.

Should an employee recognize that neither a supervisor or the Lines-Maintenance superintendent is available to document a spill or bypass, the employee should report this information to the Public Works Director. The Director may ask the employee to medicate the spill until the Lines-maintenance Superintendent or a Crew Supervisor or designee arrives at the spill site.

TABLE 1  
City of Meridian  
SEWER OVERFLOW AND PUMPING STATION OVERFLOW RESPONSE  
TRACKING PROTOCOL

1. Report of possible sewer overflow or pumping station overflow received by Lines-Maintenance Department.
2. Lines-Maintenance Department completes a work order request for service documenting the provided information.
3. Possible Sewer/Pump Station Overflow: Lines-Maintenance Superintendent or designee in the City who will investigate the reported sewer overflow is notified. Verification is provided by Lines-Maintenance Superintendent or designee who will investigate the reported sewer overflow.
4. Verified Sewer Overflow: Lines-Maintenance Superintendent or designee assesses the significance of the overflow.
  - a. (e.g., volume/flow rate of spill, contained vs. discharge to surface water) and confirms overflow to the Public Works Director. Initial telephone notification of regulatory agencies (i.e., MDEQ and EPA if overflow reaches waters of US) is made by the Lines-Maintenance Superintendent or Assistant Public Works Director or Public Works Director for all spills to creeks.
5. Possible Pumping Station Overflow: Lines-Maintenance Technician reports back to the Superintendent the status of the overflow (i.e., confirmed or unconfirmed, contained vs. discharge to surface water). If overflow is confirmed, the Lines-Maintenance Superintendent or designee shall assess the significance of the overflow. Initial telephone notification to regulatory agencies (i.e., MSDEQ) is made by the Lines-Maintenance Superintendent or Assistant Public Works Director or Public Works Director for all spills to creeks. Chief Utility Plant Operator is notified for purposes of initiating sampling plan.

Lines-Maintenance Superintendent completes Wastewater Bypass/Overflow Report Form. Wastewater Bypass/Overflow Report Form is filed with the MSDEQ and EPA within five days of confirmation of the spill.

Notifications Regarding Pump Stations during After-Hours, Holidays, and Weekends:

Should an emergency situation arise at a pumping station and the immediate contact of the on call Lines-Maintenance Technician or Lines-Maintenance Superintendent is not successful, the City staff member handling the emergency call shall, upon confirmation, take action to contain the overflow until they reach proper management staff no matter what time of day or night that an emergency may arise. The City staff member shall then first attempt to reach the Assistant Public Works Director and then the Public Works Director.

## **3.2 DISPATCH OF CREWS TO SITE OF SEWER OVERFLOW**

The purpose of immediate response to a failure of any element within the wastewater collection and pumping station systems, which threatens to cause or causes a sewage overflow, is to isolate and correct the problem as quickly as possible. Crews and equipment shall be made available to respond to any actual sewage overflow location. Also, additional maintenance personnel, materials and equipment shall be called in if extra resources are needed. Figure 1 summarizes the Sewer Overflow Action Plan.

### **1) Dispatching Crews**

- Lines-Maintenance Department shall receive notification of possible sewage spills as outlined in Section 3.1 "Receipt of Information regarding a Sewer Overflow or Pumping Station Overflow" and dispatch the request for service to Crew Supervisor or to a Pumping Station Technician.
- Upon confirmation of a reported sewage overflow, the Crew Supervisor or Technician shall directly call for support or request the Communication Center to call additional crews and resources.

### **2) Crew Instruction and Work Orders**

- Responding crews shall be dispatched by mobile radio or telephone, and shall receive instructions from the Lines-Maintenance Superintendent or on-site Crew Supervisor regarding appropriate crews, materials, supplies and/or equipment to be deployed.
- The Lines Maintenance Division's Senior Secretary/Office Manager or designee communicating with crews shall ensure that all communication with crew has been received and acknowledged by the responding crews. To avoid delay, all standard communications procedures shall be followed. All employees dispatched to the site of a sewage overflow shall proceed immediately to that site. Any delays or conflicts in assignments must be immediately reported to the appropriate Supervisor or designee for resolution.
- Responding crews shall report their findings, including damage to private and public property/ to their Supervisor or designee as frequently as necessary to keep him/her abreast of the conditions found.

### **3) Preliminary Assessment of Damage to Private Property**

- The objective is resolution of the immediate cause of the overflow. The responding crew shall use discretion in providing assistance to a property owner/occupant who has sustained property damage. Be aware that the City could face increased liability for any further damages caused to private property during such assistance. The responding crew should not enter private property for purposes of assessing damage unless directed otherwise by the Public Works Director or Assistant Public Works Director. Appropriate still photographs and video footage, if possible, should be taken of the impacted outdoor area of the sewer overflow in order to thoroughly document the nature and extent of damage. Copies of photographs, negatives or videotapes shall be forwarded to the City's designee for filing with a copy of the Spill Report or Spill to Dry Land Report/ as appropriate.

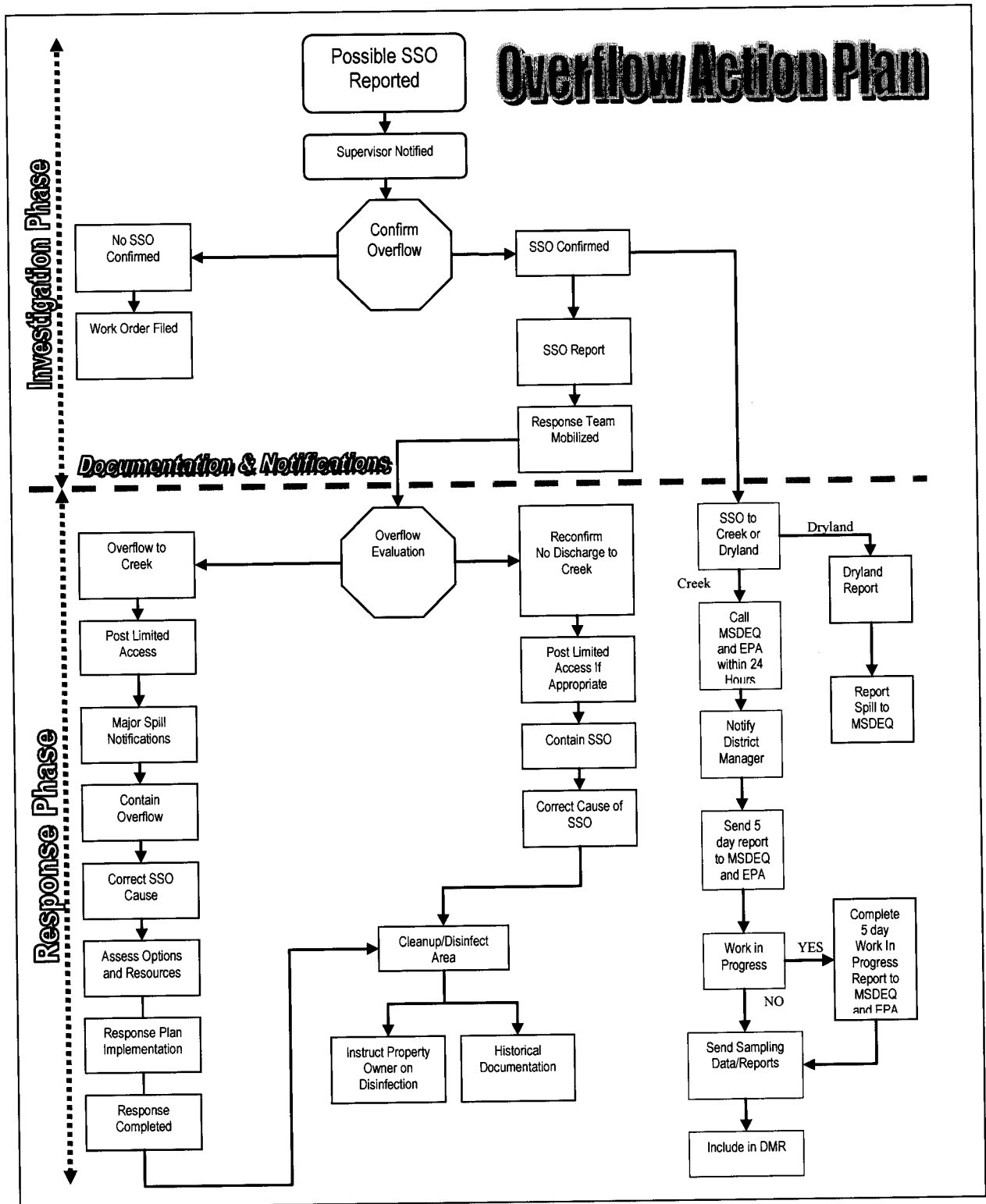
#### 4) Field Supervision and Inspection

- The Lines-Maintenance Superintendent or designee of Public Works Director shall visit the site of the overflow to assure that provisions of this overflow response plan and other directives are met.
- The Lines-Maintenance Superintendent is responsible for completion of the spill report and for confirming that the spill report is reported to the correct regulatory agencies. In the case of a pumping station overflow to a creek or dry land, the Lines-Maintenance Superintendent or his designee shall be responsible for completing the Spill in Creek Report or the Spill to Dry Land Report, as appropriate, and informing the City's management staff and regulatory agencies, as appropriate.

#### 5) Coordination with Hazardous Material Response

- The investigating Pumping Station Technician or other responding employee shall contact her/his supervisor as soon as possible whenever a suspicious substance (e.g., oil sheen, foamy residue) is found on the ground surface, surface waters or ponded areas, or upon detection of a suspicious odor (e.g., gasoline) not common to the sewer system.
- Should the Public Works Director or his designee decide it is necessary to alert the Mississippi Emergency Management response team (HAZ-MAT) in consultation with the local Fire Department, the responding crew shall wait on the arrival of the hazardous material response team to take over command of the incident. Remember that any vehicle engine, portable pump or open flame (e.g./ cigarette lighter) can ignite an explosion or fire where flammable fluids or vapors are present. Keep a safe distance and observe with caution until assistance arrives. The on-site staff shall also take measures to keep the general public away from the impacted area. Perimeter control of pedestrian and vehicular traffic shall be established.
- Upon arrival of the hazardous material response team, the responding crew shall take direction from the lead person with that team. Only when that authority determines it is safe and appropriate for the responding crew to proceed under the ERP with the sewer overflow containment, correction and clean-up activities, can they then proceed.

Figure 1



### **3.3 OVERFLOW CORRECTION, CONTAINMENT, AND CLEANUP**

Spills and bypasses may result from blocked sewers, pipe failures, power outages or mechanical malfunctions among other natural and manmade causes. The City staff is on alert and shall respond immediately upon receipt of notification of a possible overflow. This section describes specific actions to be performed by the responding crews during a sewer overflow or pumping station overflow. The objectives of these actions are:

- To protect public health, environment and property from sewage spills and restore the surrounding area back to normal as soon as possible.
- To establish perimeters and control zones with appropriate traffic cones and barricades, vehicles or use of natural topography (e.g., hills).
- To promptly notify regulatory agency's communication center of preliminary spill information and potential impacts.
- To contain the sewer overflow to the maximum extent possible including preventing the discharge of sewage into surface waters.
- To minimize the City exposure to any regulatory agency penalties and fines.
- Under most circumstances, the Department will handle response activities with its own work forces. The City possesses the skills and experience to respond rapidly and in the most appropriate manner. An important issue with respect to an emergency response is to ensure that temporary actions necessary to divert flows and repair the problem do not produce problems elsewhere in the system. For example, the repair of a force main requires the shutdown of the pump station and diversion of the flow at an upstream location. If the closure is not handled properly, a backup of sewage may create other spills. Circumstances may arise when the City requires the support of an outside construction contractor. This may occur when a deep pipe requires an emergency repair in order to resolve the overflow and extensive shoring is necessary.

#### **3.3.1 RESPONSIBILITIES OF SUPERVISOR UPON ARRIVAL**

It is the responsibility of the first employee, who arrives at the site of a sewage overflow or pumping station overflow, to protect the health and safety of the public by mitigating the impact of the overflow to the highest extent possible. The City shall take responsible actions to protect public health and water quality where deficiencies in management, operation or maintenance, or inadequate main line capacity causes stoppages and backups into buildings, or overflows from private laterals. However, should the cause of the overflow not be the responsibility of the City, e.g., an overflowing private sanitary sewer, but there is imminent danger to public health, public or private property, or to the quality of waters of the State, then prudent emergency action shall be taken until the responsible party assumes responsibility and provides appropriate action. Upon arrival at an overflow the Supervisor or responding persons shall do the following:

- Determine the cause of the overflow, e.g. sewer line blockage, sewer line break, pump station mechanical or electrical failure, or inadequate capacity, etc.
- Identify and request, if necessary, assistance or additional resources to correct the overflow or to assist in the determination of its cause.
- Take immediate steps to stop the overflow, e.g. relieve pipeline blockage, manually operate pump station controls, use portable bypass pump, repair pipe, etc. Extraordinary steps may be considered where overflows from private property threaten public health and safety (e.g., an overflow running off of private property into the public right-of-way).

- Extra care should be taken in securing the work site immediately adjacent to or around private property.
- Request additional personnel, materials, supplies or equipment that will expedite and minimize the impact of the overflow.
- Record information required for reporting.

### **3.3.2 RESPONSE TO PUMP STATION FAILURE**

The Pumping Station Emergency Procedures details the procedure to be followed by all pumping station personnel whenever a station is found not pumping, either due to a call or while the technician is on rounds. The same procedure is followed to repair a station to prevent a possible spill as well as to stop a spill.

1) The procedure contains the following steps:

- Switch to backup pump.
- If the backup will not operate:
  - Check electrical power, replace fuses or reset breakers - if still no power:
  - Call electrical power company:
  - connect portable lift station pump
- If power is available, but pump does not operate, check and clean floats.
- Operate pump by manual controls (Note: Caution shall be observed under manual operation so as not to cause an overflow or intensify an ongoing overflow.)
- Notify appropriate officials (ie, Lines-maintenance Superintendant, Assistant Public works Director, and Public Works Director).

2) Initial Measures for Containment

Initiate measures to contain the overflowing sewage where possible. In regards to sewage that has already spilled, minimizing the impact to public health or the environment.

- Determine the immediate destination of the overflow, e.g. storm drain, surface water, ground surfaces, structure, etc.
- Identify and request the necessary materials and equipment to contain or isolate the overflow, if not readily available.
- Take immediate steps to contain the overflow, e.g., block or bag storm drains, recover through vacuum truck, divert into downstream sanitary/combined sewer manhole, etc.

3) Additional Measures for Prolonged Overflow Conditions

In the event of a prolonged sewer line blockage or collapse, or pumping station outage, a determination shall be made in a timely fashion to operate a portable pumping station to direct flows around the defective or damaged area. Personnel shall be trained in proper portable pump capacity selection and the setup of temporary suction and discharge piping to assure safe and reliable emergency operation. When appropriate, other methods of bypassing such as fluming and berming shall be utilized to contain flows while repairs are made.

- Appropriate measures shall be taken to determine the proper size and number of portable pumps required to effectively handle the sewage bypass pumping operation. Continuous or periodic monitoring of the bypass pumping operation shall be implemented as required.

- Any regulatory agency issues that arise as a result of a prolonged bypass pumping situation (e.g., need for redundancy of portable pumping) shall be addressed in conjunction with emergency repairs.

#### 4) Cleanup and Disinfection

- Sewer overflow sites including contaminated soil, stream and riverbanks, and shorelines of other types of bodies of water, shall be thoroughly cleaned after an overflow. No readily identifiable residues (e.g., fecal matter, rags, papers, or plastics) shall remain.
- When practical, the area shall be thoroughly flushed with the wash-down water being contained and properly disposed. Heavy flushing could make containment of wash down water impractical or not possible. Solids and other debris shall be flushed, swept, raked, picked-up and transported to proper disposal area.
- The overflow site shall be secured to prevent contact by the public until the site has been thoroughly cleaned. Posting, if required, shall be undertaken.
- Where appropriate, the overflow site shall be disinfected and deodorized.
- Where sewage has resulted in ponding, the pond shall be pumped into a manhole if possible. If this is not possible or practical, the pond shall be vacuumed and transported by Vac-truck to the Wastewater Treatment Plant. Solids and other associated debris shall be flushed, raked, picked-up, and removed from the site and properly disposed. The contaminated soil shall be treated with lime broadcasted over the area at a rate equivalent to 100 pounds per 1,000 square feet.

#### 5) Spillage in Creek or Spillage to Dry Land Report

A Spillage Report form shall be completed by the Lines-Maintenance Superintendent. MSDEQ should be notified by phone, as specified in Section 6.0, immediately following confirmation of a spill into a waterway/dryland, but no later than 24 hours after confirmation. If navigatable waters are impacted by the spill, the USEPA should be notified according to section IV of the "Bypass and Sanitary Sewer Overflow (SSO) Reporting and Follow-Up Procedure Policy". A hard copy report for a spill to surface waters is forwarded to MSDEQ when repair work on the sewer is completed, but no later than five days after confirmation of a spill. Information recorded for sewage overflows should include the following:

- Indication of whether there was an actual observation of sewage overflow or pumping station overflow running into surface waters, or whether there was only an indication (e.g. sewage residue on the ground surface leading to the surface water) that sewage had possibly flowed to surface waters but was not actually observed.
- Indication that the sewage overflow had not reached surface waters. Guidance in characterizing these overflows as dryland overflow only includes:
  - a. Sewage spills to underground storm drains (with no public access) where a Maintenance Crew verifies, by inspection, that the entire volume is contained in an impoundment and where complete cleanup occurs, leaving no residue.
  - b. Spills where observation or on-site evidence clearly indicates all sewage was retained on land and did not reach surface water and where complete cleanup occurs leaving no residue.
  - c. Spills which enter or re-enter a combined sewer. Pre-planned or emergency maintenance on a sewer or pumping station undertaken in conjunction with the use of a temporary earthen channel or trench shall

only be used provided public access is restricted and subsequent complete cleanup occurs. Such procedures will be treated as a dry land overflow including regulatory reporting.

A determination of the start time of the sewer overflow using one or more of the following methods:

- a. Date and time report of an overflow was received by the Communication Center Customer Service representative.
- b. Date and time of a visual observation by a City employee.
- c. Pumping station flow charts and other recorded data.

A determination of the stop time of the sewer overflow is determined by using the following method:

- a. When the blockage is cleared or flow is controlled or contained
- b. Visual observations.
- c. An estimation of the rate of sewer overflow or pumping station overflow in gallons per minute (GPM) by direct observation of the overflow.

A determination of the volume or rate of the sewer overflow or pumping station overflow:

- a. When the rate of sewer overflow or pumping station overflow is known; multiply the duration by the rate of flow to determine the volume of the overflow.
- b. When the rate of overflow is not known, investigate the surrounding area for evidence of ponding, obtain dimensions of ponding and calculate volume in gallons. Total volume divided by the appropriate time interval will provide a flow rate.

Photographs should be taken of the event when possible. An assessment of any damage to public and private property should be conducted. Only the Risk Manager or Assistant Public Works Director or personnel designated by the Public works Director shall enter private property for purposes of estimating damage to structures, floor and wall coverings, and personal property.

#### 6) Customer Satisfaction

The Lines-Maintenance Superintendant or Assistant Public Works Director or Public Works Director shall make follow-up contact with the customer(s) summarizing the actions taken: to resolve the overflow, to clean up the area, and to post and barricade the area if necessary.

## **4.0 MONITORING/SAMPLING OF SURFACE WATERS AFFECTED BY SEWER SPILLS**

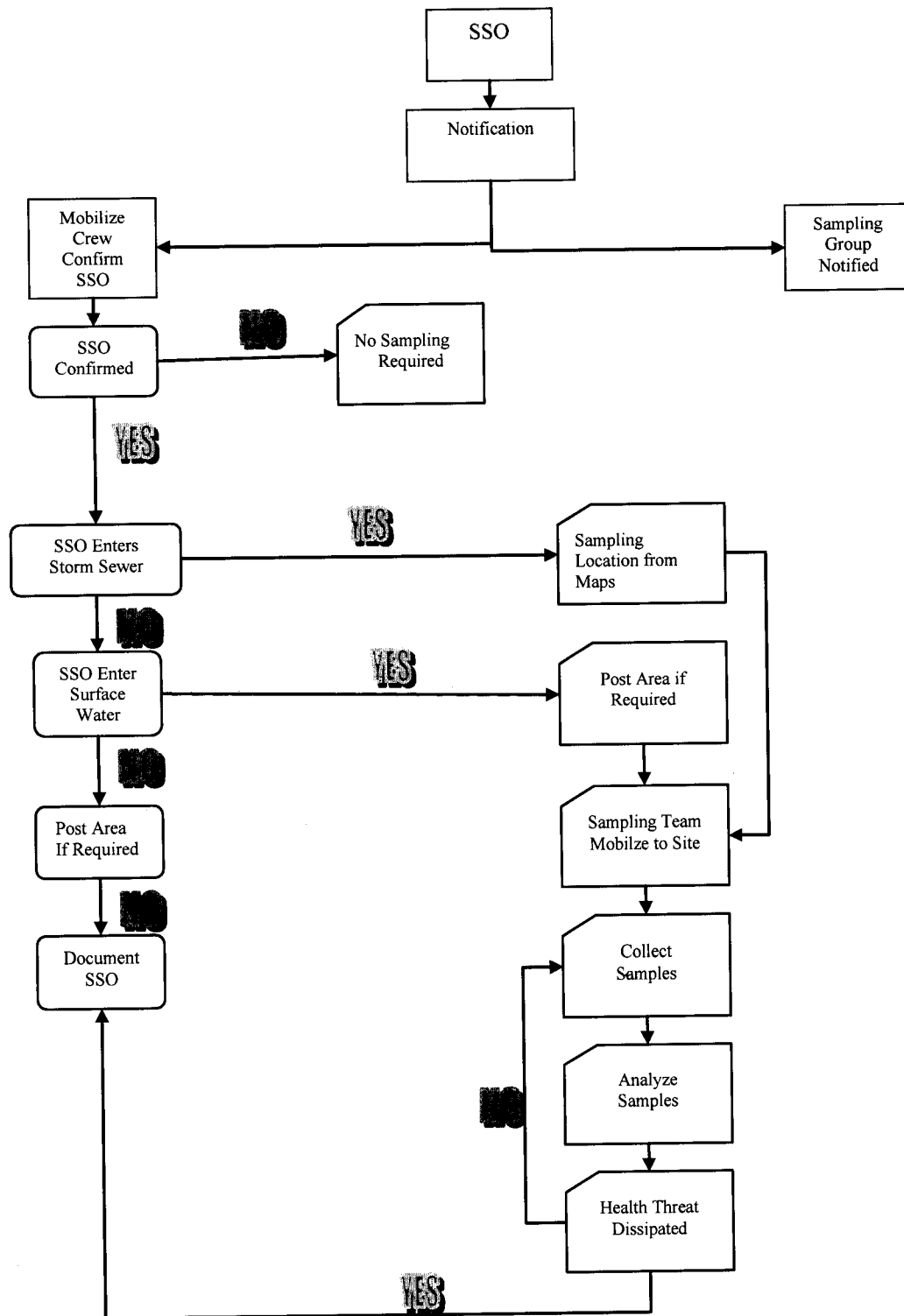
### **4.1 GENERAL PROCEDURES**

The City of Meridian will monitor and sample surface waters affected by sewer spills. Once reported, personnel from the City will respond to the location of the spill. These personnel will take the following steps, immediately after initiating efforts to stop the overflow:

- Stop spill and determine volume of spill (i.e. total gallons).
- Determine if spill goes to a stream or receiving water.
- Notify sampling team, if appropriate.
- Post signs for restricting public access.

Requests for sampling during spills shall be initiated by the Lines-Maintenance Superintendent. During normal business hours the Chief Utility Plant Operator shall be contacted to initiate sampling actions due to spills. During after hours, weekends or holidays, the laboratory staff maybe contacted directly at the South Wastewater Treatment Plant the phone number is (601)485-1815. Home telephone and cell numbers should only be called during major spill events or if contact has not been established after exhausting the list of business phone numbers. The Chief Utility Plant Operator is responsible to see that Bacteriologist is contacted in the case of any spill where sampling is required during normal business hours. Sampling request shall be made by contacting the treatment plant at (601) 485-1815.

Figure 2 - Sampling Activity  
Flow Chart



## **5.0 PUBLIC ADVISORY PROCEDURE**

This section describes the actions the City shall take, in cooperation with MSDEQ and U.S. EPA and Lauderdale County Health Departments, to protect the public and limit public access to areas potentially impacted by un-permitted discharges to surface water. Actions to limit public access to areas impacted by sewer overflows and pumping station overflows which do not reach surface water, but affect ground surfaces structures or other resources are also addressed. Public notices shall be submitted to MSDEQ by the 15th of the next month following the date of publication.

### **5.1 POSTING AND SIGNAGE**

The City has primary responsibility for determining whether signage is necessary for areas affected by sewer overflows and pumping station overflows to ground surfaces, structures or surface waters. The main factor in determining when and where to post signs is the degree of public access to any residue of the overflow that may remain at the site. The posting of signage would not necessarily prohibit use or access to the area unless stated otherwise, but provide a temporary warning of potential public health risks due to a recent sewage contamination. The City may elect to use such signs, for example, where heavy flushing made it impractical to recover all of the wash-down water commingled with sewage. In cases when posting of signs is not sufficient or not feasible, door hangers may be used instead of, or in addition to, signs. The Public Works Director or his designee in consultation and cooperation with the Department of Environmental Quality, when appropriate, shall make this decision. All spills entering waters must be posted with signage for at least seven days. Table 2 outlines the posting decision process for City personnel. The Department of Environmental Quality shall be consulted with during the posting decision process

### **5.2 OTHER PUBLIC NOTIFICATION**

Should it be determined that the posting of signs indicating that surface waters, ground surfaces or structures have been subject to a sewer overflow are not sufficient, the Public Works Director shall determine the need for further public notification. This additional notification will be accomplished through notices made available to the print or electronic news media for immediate publication or airing, or by other measures (e.g., front door hangers). Circumstances under which further public notification may be considered include:

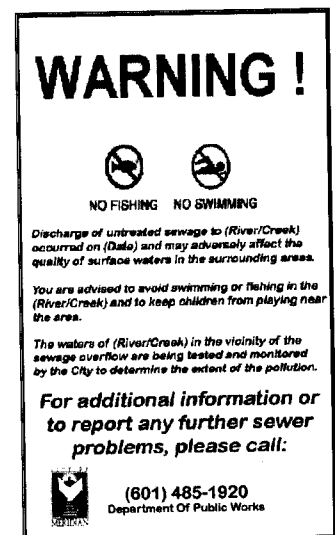
- When permanent repairs to resolve an overflow condition will take in excess of 24-48 hours and the reduction in the usage of water in homes and businesses would assist in managing the operation of the locally affected sewer or pumping station;
- When permanent repairs to resolve an overflow condition will take in excess of 24-48 hours and the citizenry need to be advised of repair schedules and possible traffic detours in the vicinity of the repairs and/or sewer or pumping station pump-around operations;
- When permanent repairs to resolve an overflow condition which took in excess of 24-48 hours are completed and the City wishes to recap the episode such as the circumstance(s) contributing to the cause of the overflow, measures taken to repair and cleanup the affected area, time required to effect repairs, total gallon age of the overflow, and any continuing monitoring of surface waters/ if applicable; and,

- When posting of waterways and ground surfaces affected by overflows cannot be effectively accomplished to adequately protect public health and safety (e.g., receiving water is bordered by private property).

Table 2  
SANITARY SEWER OVERFLOW (SSO)  
POSTING DECISION PROCESS

Step    Event/Action

1. Responding Lines Maintenance Superintendant or Crew Supervisor confirms reported SSO.
2. The Public Works Director makes decision on intent to either post or not to post, or intent to use other public notification measures (e.g. front door hangers), depending on the degree of the public's accessibility of the area impacted by the spill.
3. Lines-Maintenance Superintendent or designee of the Public Works Director calls the Department of Environmental Quality for consultation on posting decision. If the department contact is unavailable, a verbal message as to the City's intent is provided.
4. The Lines-Maintenance Superintendent is advised of the final posting decision by the Public Works Director or designee.
5. If the Public Works Director's decision not to post or use other public notification measures is subsequently reversed by the Department of Environmental Quality, the Public Works Director or his designee will be responsible for posting or using other public notification measures.
6. The Public Works Director notifies the Department of Environmental Quality before any signage or other public notification measures are removed. Locations of spills to waters must be posted for a minimum of seven days.
7. Lines-Maintenance Superintendent will note in the "comments" portion of the Work Order Form the basis for deciding to post or not post the receiving waters (e.g., limited public accessibility or area impacted by spill, adequate washdown and recovery of washdown water affected). Work Order Form is maintained with the corresponding spill file.



## **6.0 REGULATORY AGENCY NOTIFICATION PLAN**

Agency notifications shall be performed in parallel with other City internal notifications. The procedures for providing notification to the media of a sewer overflow are presented in Section 7.0. Internal notification and mobilization of personnel are detailed in Section 3.0 – Overflow Response Procedure.

Using data supplied from the confirmation of reported possible overflows and subsequent updates from response personnel, the superintendant shall prepare initial and updated Spillage in Creek and Spillage to Dry Land Report forms. The superintendant shall orally, by phone or on person, notify MSDEQ and the appropriate county health department within 24 hours of all spillage to creeks and other waters (Unpermitted Discharges).

Written notification shall be given to MSDEQ and/or EPA by a "hard copy" version of the Spillage Report (not a fax) within five (5) days from the time the City confirms an Unpermitted Discharge. The Lines-Maintenance Superintendent or Public Works Director's designee shall submit written status reports to MSDEQ every five days until the overflow is corrected for overflows that require more than 24 hours to correct. Certified mail shall be used to transmit all written reports.

## **7.0 MEDIA NOTIFICATION PROCEDURES**

When an overflow to surface water (Unpermitted Discharge) has been confirmed, the following actions shall be taken if it is necessary to notify the media:

- a. The Crew Supervisor or any employee who verifies an overflow shall contact the Lines-Maintenance Superintendent or appropriate personnel.
- b. The Superintendent or her/his designee shall provide the Public Works Director with pertinent information about the spill and direction for notification to the general public and media.
- c. The Director shall be the "first-line" of response to the media for any confirmed overflow.
- d. Calls received by the Communication Center from the media at any time are referred to the Public Works Director or his/her designee.
- e. Only the Public Works Director or her/his designee is authorized to be interviewed by the media. All others are required to have authorization from the Public Works Director authorizing media interviews.

## **8.0 DISTRIBUTION AND MAINTENANCE OF ERP**

The ERP reflects the procedures established for responding to reports of possible sewer overflows and confirmed overflows from the wastewater collection system and pumping station system so as to:

- Minimize the adverse effects of sewer overflows on public health, water quality and beneficial uses of the receiving waters.
- Minimize the sewer overflow volume which enters surface waters.
- Updates of the ERP shall be made to reflect all changes in City and regulatory policies and procedures as may be required to achieve its objectives.

## **8.1 SUBMITTAL AND AVAILABILITY OF ERP**

Copies of the ERP and any amendments shall be distributed to the following offices, departments, bureaus, divisions, sections and functional positions:

- Supervisors in the Division of Lines-Maintenance
- Executive Management Staff when appropriate; and,
- Director and Assistant Director in Public Works Department.

All other City staff who may become incidentally involved in responding to collection system and pumping station overflows shall be generally familiar with the contents of the ERP.

## **8.2 REVIEW AND UPDATE OF ERP**

The ERP shall be reviewed and amended as appropriate. At a minimum the City of Meridian shall:

- Conduct annual reviews of the ERP and update it with the issuance of a revised or new NPDES permit.
- Review and update, as needed, the various contact person lists included in the ERP.

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

ATLANTA FEDERAL CENTER

61 FORSYTH STREET

ATLANTA, GEORGIA 30303-8960

MAY 06 2014

**CERTIFIED MAIL** 7012 1010 0002 0759 6854  
**RETURN RECEIPT REQUESTED**

The Honorable Percy Bland  
Mayor, City of Meridian  
601 23rd Avenue  
Meridian, Mississippi 39302

Re: U.S. Environmental Protection Agency and Mississippi Department of Environmental  
Quality Compliance Evaluation Inspection  
Notice of Violation, Notice of Opportunity to Show Cause and Information Request  
National Pollutant Discharge Elimination System Permit Nos.: MS0020117 and MS0055735  
Meridian South Publically Owned Treatment Works and Meridian East Publically Owned  
Treatment Works

Dear Mayor Bland:

On April 8 – 9 2014, the U.S. Environmental Protection Agency Region 4 and the Mississippi Department of Environmental Quality (MDEQ) conducted a Compliance Evaluation Inspection (CEI) of the City's Wastewater Collection and Transmission System (WCTS) associated with the Meridian South Wastewater Treatment Plant (South WWTP) and the Meridian East Wastewater Treatment Plant (East WWTP) and also performed a Reconnaissance Inspection on the City's South WWTP. The objective of this CEI was to assess the City's compliance with the Clean Water Act (CWA) and the City's National Pollutant Discharge Elimination System (NPDES) permits. Additionally, the EPA evaluated the City's Management, Operations and Maintenance Programs related to its WCTS and assessed the overall condition of the South WWTP. The inspection results are summarized in the enclosed inspection report.

During the CEI, the City provided the EPA with information gathered from its Wastewater Division customer complaint database. The EPA has several questions regarding the database, which are outlined below. The EPA also has questions outlined below regarding Sanitary Sewer Overflows (SSOs).

1. Please provide the date and street address for the works orders provided to the EPA during the CEI from January 2011 to present.
2. What does the "Line Numb" column represent in the spreadsheet submitted to the EPA during the CEI?
3. For purposes of this Information Request, a sanitary sewer overflow (SSO) is an overflow, spill, release, or diversion of wastewater from the sanitary sewer system. SSOs include overflows or releases of wastewater that reach waters of the U.S.; overflows or releases of wastewater that do not reach waters of the U.S.; and wastewater backups into buildings that are caused by blockages

Internet Address (URL) • <http://www.epa.gov>

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or flow conditions in a sanitary sewer other than a building lateral. Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned is not an SSO.

Provide a listing of all SSOs that occurred from September 2008 to the present. For each SSO provide the following:

- a. Date(s) of the SSO;
- b. Time (and Date if other than a. above) when the City was notified that the SSO event occurred;
- c. Time (and Date if other than a. above) when the City (or contractor) crew responded to the SSO;
- d. Time (and Date if other than a. above) when the SSO ceased;
- e. Time (and Date if other than a. above) when corrective action was completed;
- f. Location of the SSO, including source (pump station, manhole, etc.);
- g. Ultimate destination of the SSO, such as surface waterbody (by name, if available), storm drain leading to surface waterbody (by name, if available), dry land, building, etc.;
- h. Volume of the SSO;
- i. Cause of the SSO such as grease, roots, other blockages, wet weather (infiltration and inflow), loss of power at pump station, pump failure, etc.;
- j. Corrective actions taken to stop the SSO; and
- k. Corrective actions taken to prevent this or similar SSOs in the future.

If available, please provide the above information in a Microsoft compatible spreadsheet

Pursuant to Section 308 of the CWA, 33 U.S.C. § 1318, the EPA hereby requests the City to provide the information set forth in the questions above. The City is required to respond to this information request, as well as the enclosed CEI report, within 30 days of its receipt of this letter. The response should be directed to:

Ms. Sara Schiff, Enforcement Officer  
U.S. Environmental Protection Agency, Region 4  
Clean Water Enforcement Branch  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303-8960

The City's response to this information request should specifically reference the particular question number of the request and should be organized for the purpose of clarity. In addition, all information submitted must be accompanied by the following certification signed by a responsible City official in accordance with 40 C.F.R. § 122.22:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Failure to comply with this information request may result in enforcement proceedings under Section 309 of the CWA, 33 U.S.C. § 1319, which could result in the judicial imposition of civil or criminal penalties or the administrative imposition of civil penalties. In addition, there is potential criminal liability for the falsification of any response to the requested information.

The City shall preserve, until further notice, all records (either written or electronic) which exist at the time of receipt of this letter that relate to any of the matters set forth in this letter. The term "records" shall be interpreted in the broadest sense to include information of every sort. The response to this information request shall include assurance that these record protection provisions were put in place as required. No such records shall be disposed of until written authorization is received from the Chief of the Clean Water Enforcement Branch at the U.S. EPA, Region 4.

Based upon review of information collected during this inspection, the EPA has determined that the City violated the CWA as follows:

1. During the period of November 24, 2010, through March 28, 2014, the City had 74 SSOs that discharged untreated sewage from the City's WCTS associated with either the South WWTP or the East WWTP, as recorded on SSO report records submitted by the City to MDEQ and obtained by the EPA. The EPA also observed SSOs during the CEI in three locations and several manholes located throughout the City along Sowashee Creek and the service road leading to the East WWTP that reached navigable waters of the U.S., as defined by Section 502 of the CWA, 33 U.S.C. § 1362. Such SSOs were not authorized by the NPDES permits. SSOs that reach waters of the U.S. are violations of Section 301(a) of the CWA, 33 U.S.C. § 1311(a).
2. SSOs that reach waters of the U.S. and SSOs that do not reach waters of the U.S. are also indicative of improper operation and maintenance of the WCTS. Therefore, the City is in violation of the South WWTP Permit No. MS0020117, Condition T-28 (Proper Operation, Maintenance and Replacement), which requires the City to operate and maintain all components of the system to achieve compliance with the conditions of the permit and Permit Condition T-29 (Duty to Mitigate), which requires the City to minimize or prevent discharges from the system.
3. The East WWTP is permitted under Permit No. MS0055735, which contains the same operation, maintenance and replacement and duty to mitigate requirements as the South WWTP, but contains different permit condition numbers. Therefore, the City is also in violation of the East WWTP's Permit Condition T-27 (Proper Operation, Maintenance and Replacement) and T-28 (Duty to Mitigate).
4. The City has also failed to perform basic maintenance requirements for the Meridian South Plant, in violation of the South WWTP's Permit Condition T-27 (Proper Operation, Maintenance and Replacement). Specifically, the weir to Clarifier 2 is allowing short circuiting of the treatment process due to damaged or broken weir plates in the clarifier and one Return Activated Sludge (RAS) line is not discharging RAS properly into an aeration basin due to a ruptured RAS pipe.
5. The City has also violated the effluent limitations in its Permits on numerous occasions as indicated by the effluent exceedances listed in Enclosure B.

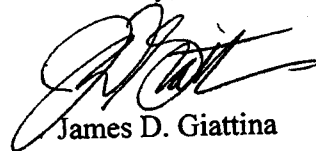
Until compliance with the CWA is achieved, the City is considered to be in violation of the CWA and subject to enforcement action pursuant to Section 309 of the CWA, 33 U.S.C. § 1319. This Section

provides for the issuance of administrative penalty and/or compliance orders and the initiation of civil and/or criminal actions.

To resolve the identified violations and discuss the EPA's possible enforcement actions, including the assessment of appropriate civil penalties, we request that representatives of the City contact Ms. Sara Schiff at (404) 562-9870 or via email at [schiff.sara@epa.gov](mailto:schiff.sara@epa.gov), within five business days of receipt of this letter to make arrangements for a conference. In lieu of appearing in the EPA's offices for this meeting, a telephone conference may be scheduled. The City's representatives should be prepared to provide all relevant information with documentation pertaining to the above violations including, but not limited to, any financial information, which may reflect the City's ability to pay a penalty. You have the right to be represented by legal counsel. Failure to appear may result in an immediate enforcement action against the City. The EPA may consider information provided during the meeting or telephone conference in any enforcement proceeding related to this matter.

If you should have any questions regarding this matter, please contact Ms. Sara Schiff. Legal inquiries should be directed to Ms. Tanya Floyd, Associate Regional Counsel, at (404) 562-9813 or via email at [floyd.tanya@epa.gov](mailto:floyd.tanya@epa.gov).

Sincerely,



James D. Giattina  
Director  
Water Protection Division

Enclosure

cc: Mr. Hugh Smith  
City of Meridian

Mr. Chris Sanders  
Mississippi Department of Environmental Quality

Mr. Les Herrington  
Mississippi Department of Environmental Quality

**ENCLOSURE A**

**Compliance Evaluation Inspection Report**

**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**

**Region 4**

**Water Protection Division**

**Clean Water Enforcement Branch**



**WASTEWATER COLLECTION AND TRANSMISSION SYSTEM  
COMPLIANCE EVALUATION INSPECTION  
AND  
WASTEWATER TREATMENT PLANT RECONNAISSANCE INSPECTION  
REPORT**

**Public Works Department**

City of Meridian

Lauderdale County

Mississippi

NPDES Permit Nos. MS0055735 and MS0020117

**Facility Address:**

311 27<sup>th</sup> Avenue

Meridian, Mississippi 39302

**Inspection Date:**

April 8 - 9, 2014

**Inspectors:**

Dennis Sayre, EPA Region 4

Sara Schiff, EPA Region 4

Jim Harvey, MDEQ

**Inspection Report Prepared by:**

Dennis Sayre

April 18, 2014

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## ABBREVIATIONS AND ACRONYMS

CEI	Compliance Evaluation Inspection
CWA	Clean Water Act
DMR	Discharge Monitoring Report
EPA	United States Environmental Protection Agency
GIS	Geographic Information System
GPM	Gallons per Minute
I/I	Infiltration/Inflow
ICIS	Integrated Compliance Information System
MDEQ	Mississippi Department of Environmental Quality
NPDES	National Pollutant Discharge Elimination System
MGD	Million Gallons per Day
MOM	Management, Operation, and Maintenance
PS	Pump Station
SORP	Sewer Overflow Response Plan
SSO	Sanitary Sewer Overflow
WCTS	Wastewater Collection and Transmission System
WWTP	Wastewater Treatment Plant

## I. OVERVIEW

The Meridian Public Works Department consists of seven divisions: Engineering, Construction, Administration, Environmental, Business Operations, Water, and Wastewater. The Wastewater Division provides sanitary sewer services for residential, commercial and industrial entities within the City of Meridian (the City) and receives domestic wastewater from Meridian Naval Air Station, Key Field Air National Guard Base, the City of Marion (Population: approximately 1500), and the East Mississippi Correctional Facility that lies outside the Meridian city limits. The Wastewater Division is responsible for the operation and maintenance of two wastewater treatment facility, approximately 330 miles of sewer gravity line and force mains, 66 pump stations and other sewer related appurtenances serving approximately 40,800 residential customers within the city limits.

In March 2014, the Clean Water Enforcement Branch, EPA Region 4 received a citizen's complaint with photographic evidence and location descriptions that described a series of illicit discharges originating from the City's wastewater collection and transmission system (WCTS). Subsequently, the EPA conducted a Compliance Evaluation Inspection (CEI) of the City's sewer system on April 8 through April 9, 2014. The purpose of this CEI was to evaluate compliance with the CWA as it relates to Sanitary Sewer Overflows (SSOs) from the WCTS and to assess the City's Management, Operations and Maintenance (MOM) programs. Additionally, the purpose of this compliance inspection was to substantiate the citizen's complaint and to examine the causes and potential corrective actions for SSOs from the WCTS.

On April 8, 2014 the EPA conducted an independent reconnaissance inspection as a pre-requisite site visit of locations identified in the citizen's complaint. The City experienced 1.61 inches of rain on April 7<sup>th</sup> and 0.47 inches of rain on April 8<sup>th</sup>, according to Key Field Airport data. The EPA photographed several SSOs on April 8<sup>th</sup>. On April 9<sup>th</sup>, the EPA and the Mississippi Department of Environmental Quality (MDEQ) conducted a CEI with the City, which the EPA requested written documentation of any MOM programs that the City may use to operate and maintain the WCTS. The EPA also discussed inspection and maintenance records, interviewed management personnel and visited various sites in the WCTS, including some of the SSOs that were sighted the previous day, and two pump stations. This report describes EPA's findings, identifies areas of concern and presents preliminary recommendations.

## II. OBJECTIVES

The specific objectives of the inspection were to assess the City's compliance with the CWA, evaluate reported SSOs, assess the MOM programs, where implemented, and to examine the causes of SSOs in the City's sewer system.

### III. INVESTIGATION METHODS

The investigation included:

- Review of citizen's complaint;
- Review of the Integrated Compliance Information System - National Pollutant Discharge Elimination System (ICIS-NPDES) federal database, state documents and the NPDES Permit;
- Interviews with the City's Wastewater Division personnel and Public Works Director; and,
- Visual inspection.

### IV. REGULATORY SUMMARY

The MDEQ is authorized under the CWA to implement the NPDES program in Mississippi. The Meridian South Wastewater Treatment Plant (South Plant) is authorized under MDEQ's NPDES Permit No. MS0020117 (the South Permit) and the Meridian East Plant (East Plant) is authorized under the NPDES Permit No. MS0055735 (the East Permit) to discharge treated sewage into Sowashee Creek. The City is currently transitioning to a 100% re-use system by supplying 100% (or near 100%) of the flow from the combined South Plant and East Plant flow to be used as cooling water for the Southern Company power plant currently under construction in Kemper County. The East Plant outfall has been diverted to the South Plant for mixing and eventual discharge to a Southern Company power plant; however, the combined flow is currently being discharged into Sowashee Creek using the South Plant outfall until such time that the power plant construction is completed and capable of accepting flow from the City. The MDEQ is working to combine the South Plant and East Plant permits into one permit. Both NPDES permits are currently valid. Estimated tie-in, according to Meridian officials, is August 2014. The South Plant and the East Plant are both major dischargers with a combined permitted capacity of 14 million gallons per day (MGD).

The Sowashee Creek is a major tributary of the Pascagoula River in the Pascagoula River Basin and is listed on Mississippi's 2010 and 2012 303(d) list as impaired for Nitrogen and Phosphorus. MDEQ has also developed Total Maximum Daily Loads (TMDLs) for Sowashee Creek to address previous 303(d) listed impairments; including a Sedimentation TMDL and an Organic Enrichment/ Low Dissolved Oxygen TMDL.

SSOs are prohibited discharges based on Sections 301 and 402 of the CWA which generally prohibit the discharge of pollutants by any person unless authorized by an NPDES permit. The East Permit Condition No.T-27 and the South Permit Condition No. T-28 requires the City to minimize or prevent discharges. The East Permit Condition No.T-28 and the South Permit Condition No. T-29 also requires the City to operate and maintain all components of the system to achieve compliance with the conditions of the permit.

## V. INSPECTION SUMMARY AND FINDINGS

The EPA performed a pre-inspection evaluation and an on-site inspection of the WCTS. The pre-inspection evaluation of the City's WCTS consisted of examining historic records submitted by the City. This section will provide a summary of both means of inspection as well as any recommendations to the City to improve the WCTS performance.

### A. Management Interview

The EPA met with the City's Director of Public Works (the Director), the Utility Line Superintendent, and a MDEQ staff member at 8:00 a.m., April 9, 2014, at the City's Public Works office. Topics of discussion during the meeting included the use and documentation of any MOM programs, including Mapping, Sewer Overflow Response Plan (SORP), Preventive Maintenance Programs, Operations Programs, Continuous Sewer System Assessment Program (CSSAP), Capacity Assurance Program, and Fats, Oil, and Grease (FOG) Control. The EPA also discussed SSOs that the City may be experiencing, citizen complaints and record keeping.

The EPA discussed concerns relating to SSOs in detail with the Director and inquired about each program listed above to determine whether a formal or non-formal (not in writing) program existed to manage various maintenance and operations needs of the WCTS.

The City has its WCTS mapped in a GIS-based map that displays sewer pipe and manhole locations. The EPA did not examine the details of the GIS mapping system or what data is maintained in the GIS system except for sewer pipes and manhole locations. The City does not have an advanced GIS add-on to track detailed sewer data.

The City has also developed and implemented a SORP-like document in two separate documents titled "Emergency Response and Contingency Plan" and the "Bypass and Sanitary Sewer Overflow Reporting and Follow-up" documents. These documents include information on responding to and cleaning up an SSO, notification to MDEQ procedures, available equipment, and important contact information. These documents were not closely evaluated during the inspection but they were approved by MDEQ as a product of a previous Agreed Order between the City and MDEQ. These documents do not include guidance on estimating SSO volume.

The City has two jetter-trucks and crews. The City also has three trailer mounted bypass pumps, one camera truck, a hand-held camera, excavation and trenching equipment, spare pipes, manhole structures and fittings to respond to SSOs and perform necessary structural repairs.

The City has 66 pump stations throughout the WCTS. Of the 66 pump stations, none of the pump stations have onsite emergency back-up power. The City has three trailer mounted pumps, one or two portable emergency generator used for emergency pump station operations. The City does not appear to have formal written preventive maintenance or

operations programs, but the City demonstrated that they have a routine pump station inspection program and perform maintenance as needed.

The City does not have a formal CSSAP. The City is performing pieces of a typical CSSAP, such as periodic wet well and manhole inspections.

The City does not have any formal, written preventive maintenance programs for maintenance of the WCTS.

The City does not have a formal capacity assurance program to ensure adequate capacity in the system for new sewer connections.

The City has no formal written FOG program; however, the Public Works Department is authorized to inspect grease traps. The City's Sewer Use Ordinance sets the effluent standard for grease concentrations to be 100 mg/l maximum, businesses that exceed that concentration requires a grease interceptor or grease trap. The Public Works Department did not present any formal grease trap inspection schedule or program. The City's Line Superintendent stated that approximately 75% of the City's SSOs originate from grease related blockages.

The City has a rudimentary customer complaint system and procedures that rely on the initiation of paper work orders within the Public Works office to respond to, and address customer complaints during normal business hours. The Public Works call-in number is publicized on the City's website. Outside of normal business hours, complaint calls are received at the Drinking Water Plant. Paper work orders are entered into a basic database software system (IBM AS400 software) to track and maintain basic records; however, there are no established procedures to maintain the original customer complaint record and the database being used to track work orders is old and rather antiquated for a City of this size. Weekly reports are routed to the Director for review and copied to the Mayor and City Council.

## **B. SSO Observations**

Discharges to waters of the United States from sanitary sewer systems are prohibited unless authorized by an NPDES permit. In addition, overflows from the sewer system that do not reach waters of the United States can be indicative of a failure to comply with the proper operation and maintenance provisions of City's permits.

An examination of the information submitted to the EPA from a concerned citizen indicated that the City is experiencing SSOs in various locations, most of which appeared to be occurring along a major trunk line that runs alongside of Sowashee Creek. This portion of the City's WCTS provides flow to the South Plant. Figure 1 shows the approximate locations of the SSOs reported via citizen's complaint.

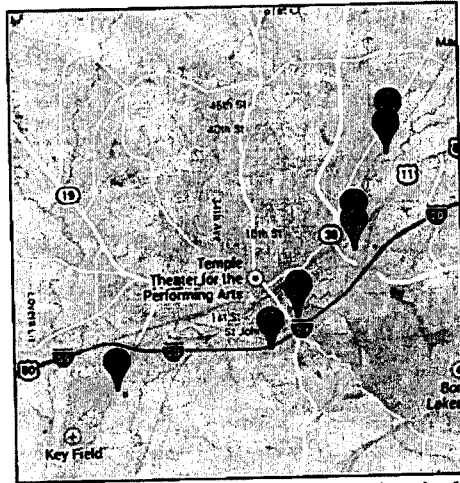


Figure 1. Orange and green pins indicate SSO locations, blue pin A is the East Plant, blue pin B is the South Plant.

Figures 2 through 6 are SSO locations discovered on April 8<sup>th</sup> and April 9<sup>th</sup>.

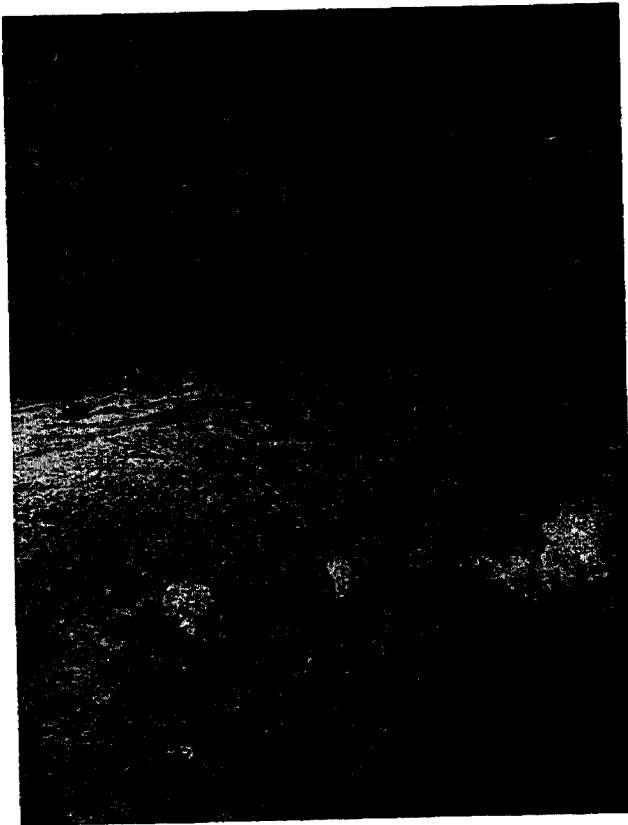


Figure 2. An SSO located on Sowashee Drive occurring on April 8, 2014. The ditch was dug by an unknown citizen, not the City (according to the City), and diverts flow from the manhole directly into a tributary creek of Sowashee Creek. The flow from the SSO would have entered the creek without the ditch. The EPA discovered three manholes on Sowashee Drive that were actively discharging.



Figure 3. This manhole is also located on Sowashee Drive and is one manhole upstream of the manhole in Figure 2. This manhole was uncovered on April 9, 2014. The surcharged condition of this manhole is 6 inches from the lid. Massive root build-up at the crown is evident.



Figure 4. An active SSO located next to Sowashee Creek behind businesses near 108 U.S. Hwy 80 on April 8, 2014. The inspection team returned to this sight with MDEQ and the City and noted that the pipe was still surcharged to the top of the manhole on April 9, 2014.

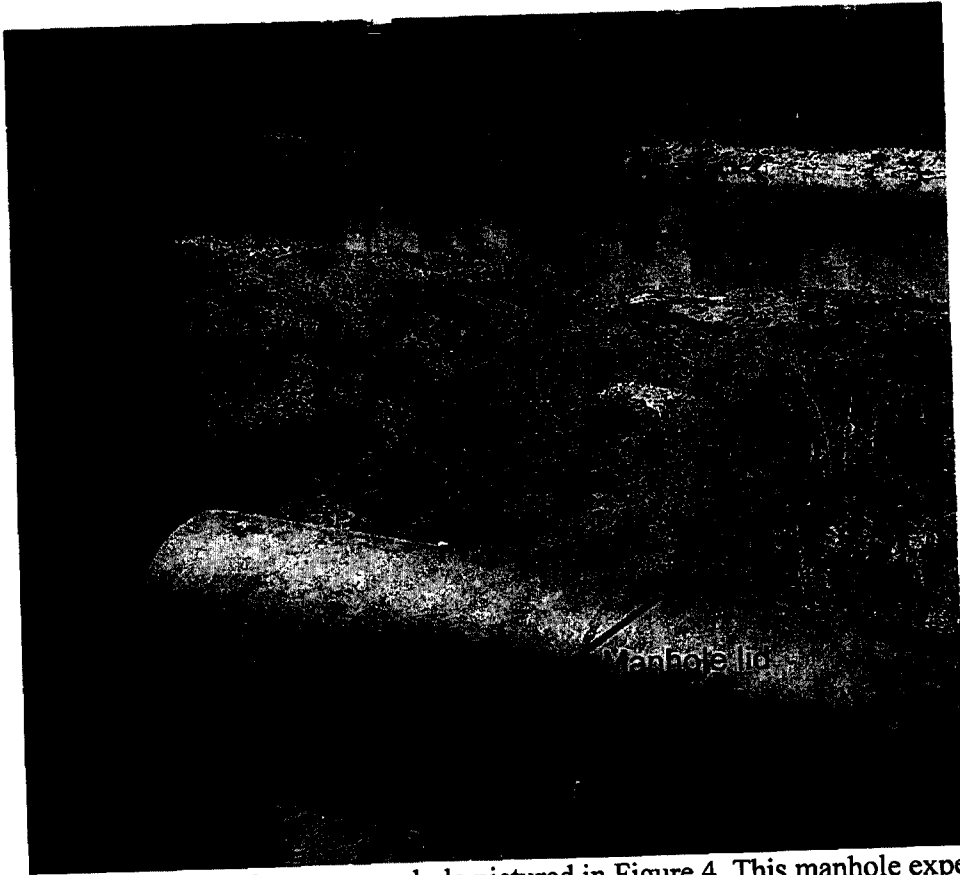


Figure 5. This is the same manhole pictured in Figure 4. This manhole experienced enough pressure to blow the manhole lid off of the crown (arrow) and flows often enough, and strong enough to cut a substantial open channel to Sowashee Creek. Multiple manholes along this stretch of pipe had misplaced (but not blown off of the crown) manhole lids.



Figure 6. This SSO was observed on April 8, 2014 on the service road leading to the East Plant. The inspection team did not revisit this site with MDEQ or the City.

### C. WWTP Observations

The EPA performed a Reconnaissance Inspection on April 9, 2014, accompanied by MDEQ and the Lead Plant Operator for the South Plant. The following are observations noted during inspection. The South Plant is a conventional activated sludge treatment plant. The South Plant consists of the originally designed activated sludge treatment system (the "old side") and a newer activated sludge system (the "new side") that is larger than the original design. Both treatment systems have separate biological treatment trains, including separate chlorine contact chambers, the flow from both treatment trains are blended together before the outfall.

The Mixed Liquor Suspended Solids (MLSS) in the aeration basins appeared to be thin, meaning that the biomass to liquid ratio was low (Figure 7). The Lead Operator stated that the MLSS is about 2500 mg/L. Normal range for this type of plant ranges from 2000 to 4000 mg/L, depending on the individual plant characteristics. 2500 mg/L is within acceptable book limits; however, low MLSS concentrations can lead to permit limit exceedances and it is unclear whether this plant can operate efficiently at 2500 mg/L.

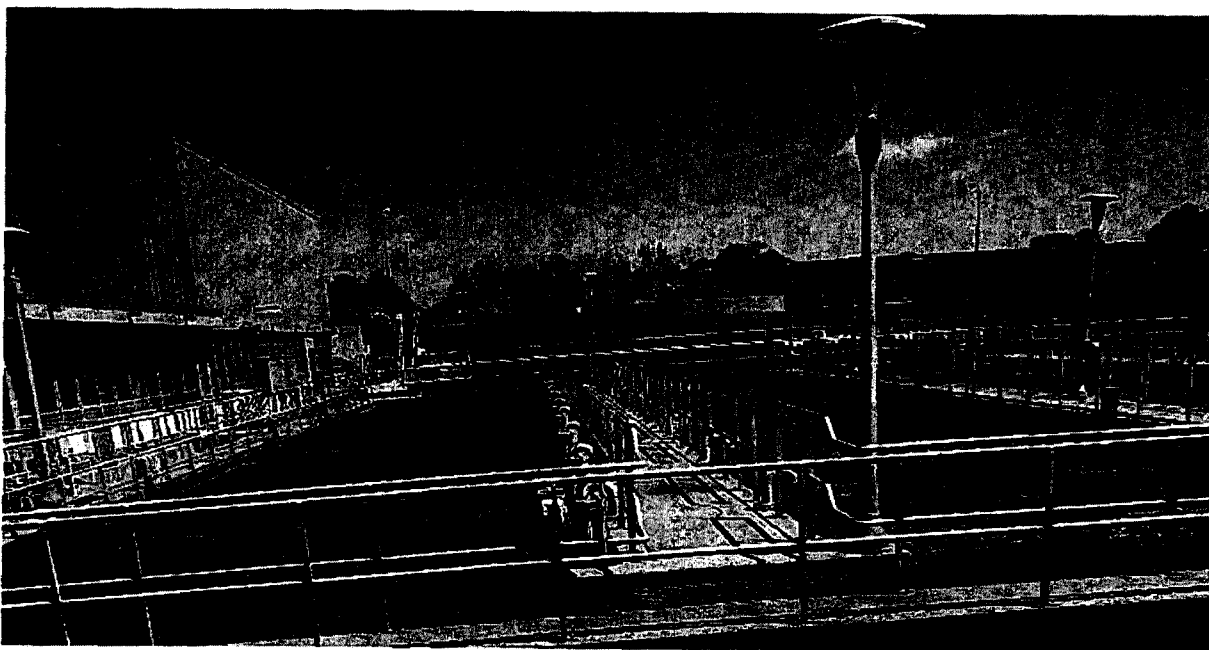


Figure 7. Aeration basins. The MLSS was thin and light brown in appearance.

A "sludge judge" was inserted into Clarifier 1 to measure the sludge blanket levels. The sludge judge measured a low sludge blanket (Figure 8). The Lead Operator stated that he had wasted solids the day before. Nominal sludge depth is determined on a case-by-case basis, but this low of a blanket is indicative of recent wasting operations.



Figure 8. A sludge judge was used to measure sludge blanket depth in Clarifier 1. Sludge depth appeared to be less than one foot in depth.

The inspection team noted several operation and maintenance issues throughout South Plant. The surface skimmers used to remove floating debris for all of the clarifiers have been removed. Removing these skimmers may not have a significant operational impact on the quality of the effluent, but solids floating in the clarifier and algae blooms reported to regularly occur during hotter seasons can cause wear and tear on the equipment. The weir for Clarifier 2 is dysfunctional and short circuiting the system (Figure 9). This type of weir separation was noted on more than one location in Clarifier 2. Significant algae build up was noted on all of the clarifier weirs.

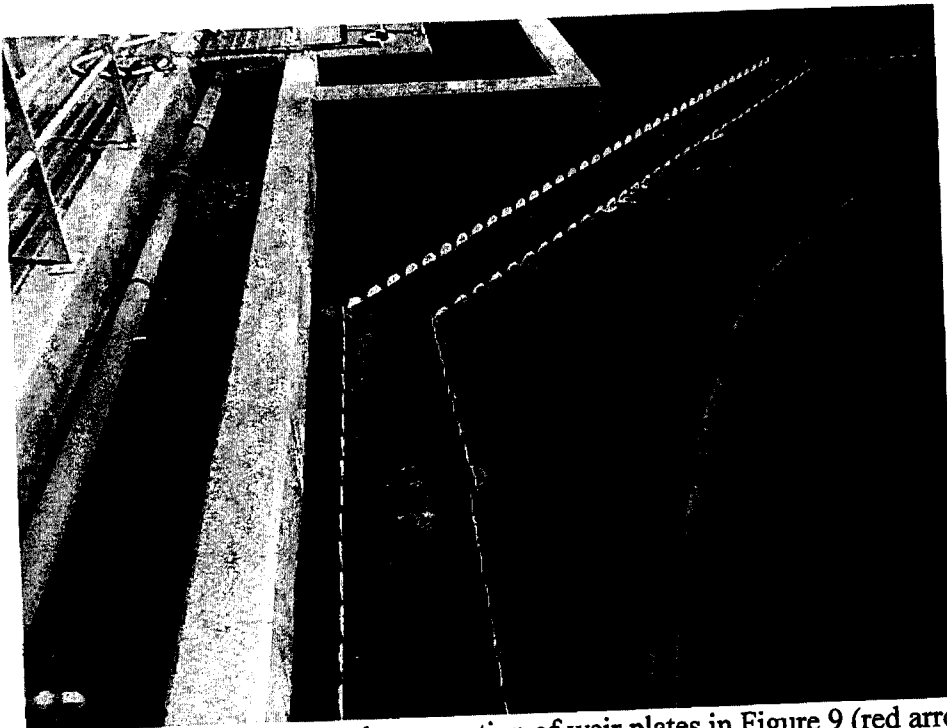


Figure 9. Clarifier 2. Note the separation of weir plates in Figure 9 (red arrow).

The inspectors noted a Return Activated Sludge (RAS) line that is broken above the aeration basin on the "new side" of the plant (Figure 10). The RAS discharging a portion of its flow above the basin may not be affecting the operations of the system, but it is indicative of improper operation and maintenance.

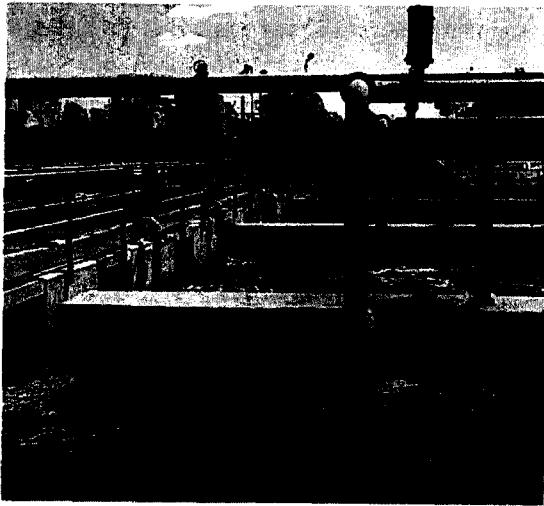


Figure 10. Aeration basin with dysfunctional RAS line.

The inspectors noted that the clarified effluent entering and exiting the chlorine contact chamber on the "new side" was significantly turbid (Figure 11). The flow entering and exiting the "old side" was much less turbid, but not clear.

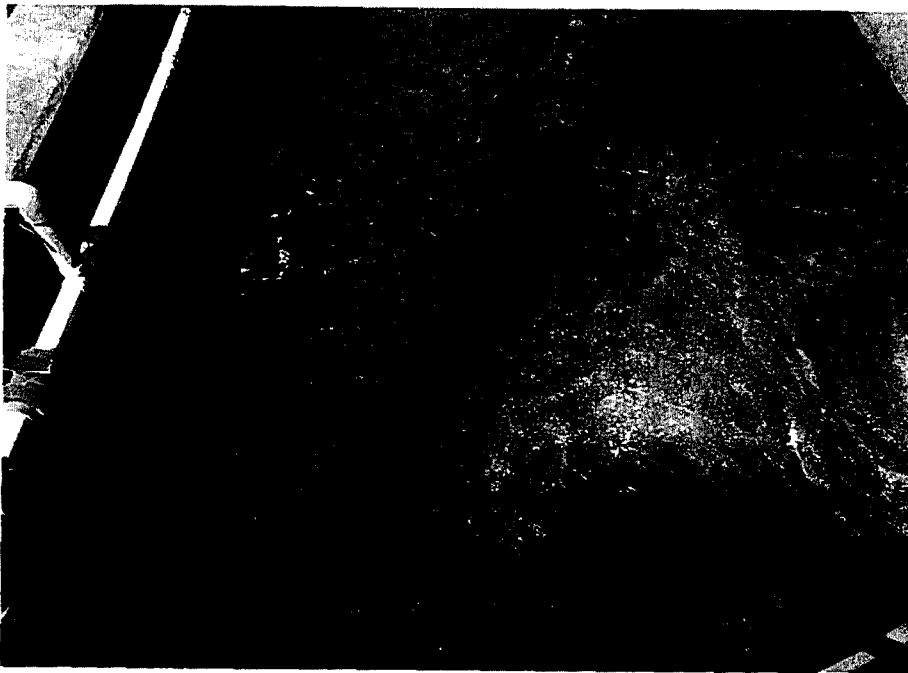


Figure 11. Chlorine Contact Chamber for the "new side". Flow exiting the chamber was notably turbid and had an unclear appearance.

#### D. Conclusion

The City's personnel were courteous and appear knowledgeable about the system; however, there are some significant deficiencies noted above. The City has not developed and implemented many formal MOM programs, even though they are currently performing some of the work inclusive of the MOM programs.

The City maintains that they have knowledge of the systems wet weather capacity deficiencies. The Director stated that a pump station project is planned to redirect some of the flow that is impacting the length of pipe experiencing SSOs along Sowashee Creek to the East Plant, but the City did not provide supporting evidence that this addition will eliminate the SSOs. Deficiencies noted above are indicative of a Public Works that appears to be undermanned, underfunded and ill-equipped to properly operate and maintain a publically owned treatment system of this size and magnitude. The inspectors noted sewer manholes that were immersed in water (Figure 12 below), manhole crowns displaced from the main structure, manhole lids blown off of the crown, broken major components at the South Plant, all in the measure of less than 10 hours of inspection.



Figure 12. Manhole immersed in water.

The City should immediately take steps to address the wet weather issues in the system and repair damaged components at the South Plant. A thin MLSS at the South Plant may also be indicative of excessive Inflow and Infiltration (I/I) being introduced into the treatment process causing a low MLSS and turbid effluent. The City should immediately take steps to assess the WCTS for excessive I/I that are contributing to the wet weather SSOs and to the likelihood of excessive I/I being introduced into the WWTP.

The City should also update their software for tracking complaints and work order to better maintain records required of the regulatory community and to allow for more efficient trend analysis of the system, among other advantages. The City stated that 75% of the SSOs that occur in the system are FOG related. Given that the known wet weather SSOs are significant in number and volume, the EPA must assume that FOG related SSOs are a significant

problem causing SSOs within the City.

### **1. Management, Maintenance and Operations Programs**

The EPA noted some preventive maintenance procedures that the City is utilizing that are in keeping with best management practices to operate and maintain the system; however, the EPA has some major concerns with regard to the City's FOG program, Capacity Assurance Program, Continued Sewer Assessment Program, Infrastructure Rehabilitation Program and other programs that should be formally adopted to properly operate and maintain this size of system. The EPA recommends that the City develop formal written programs for these preventive maintenance procedures and programs. Developing formal written programs will aid the City in refining these programs, which should increase efficiency of the programs and provide guidance for the implementation of these programs that can be passed down to the next maintenance generation.

MOM Program development guidance documents can be found on EPA, Region 4's website at <http://www.epa.gov/region4/water/wpeb/momproject/>. Recommended MOM programs include:

#### **a. Mapping Program**

Formal Mapping Program documentation should be developed to ensure consistency of map protocol and to provide official guidance for map review and maintenance. The existing GIS program should be expanded to include more sewer specific configuration data and maintenance tracking data such as pipe cleaning and inspection.

#### **b. Grease Control Program**

The EPA recommends that the City develop documents that outline procedures and provide guidance on how to manage and reduce FOG build-up in the WCTS. A valid FOG program includes providing guidance documents for permitting, inspection, enforcement, compliance tracking, budgeting, establishing inspection priorities, public education guidance and performance goals and provide specific grease control obligations for food service establishments in accordance with City ordinances. Formal FOG program development should include a review of the City's ordinances to ensure that the appropriate Public Works personnel have the ability to adequately enforce FOG related ordinances.

#### **c. Capacity Assurance Program**

The EPA recommends that the City develop a formal Capacity Assurance Program that includes specific criteria for approval of additions to the system balancing Permit requirements and the City's codes and ordinances; performance measures used to approve or deny an extension of the collection system; and procedures used to

calculate capacity in the collection system and at the treatment plant.

**d. Preventive Maintenance and Inspection Programs**

The EPA recommends that the City develop formal written MOM Programs with aggressive preventive maintenance, inspection and rehabilitation programs that define goals for cleaning, inspection, rehabilitation, preventive maintenance activities, including:

**A Gravity Line Preventive Maintenance Program.** The Gravity Line Preventive Maintenance Program should include the following components: 1) blockage abatement mechanisms (including both hydraulic and mechanical cleaning); 2) root control mechanisms; 3) debris control mechanisms, and 4) manhole preventive maintenance procedures. This program should include the following activities: 1) identification of, and provision for, all personnel and equipment needed; 2) determination of the frequency; 3) establishment of procedures; 4) establishment of priorities for scheduling; 5) the use of standard forms; 6) establishment of record keeping requirements; 7) establishment of performance measures; and 8) integration of all data collected under the program with other information management systems.

**A Continuing Sewer System Assessment Program (CSSAP).** The CSSAP should establish procedures for setting priorities and schedules for undertaking the WCTS assessment including: 1) corrosion defect identification; 2) routine manhole inspections; 3) flow monitoring; 4) CCTV activities; 5) gravity system defect analysis; 6) smoke testing, and; 7) pump station performance and adequacy analysis. The CSSAP should provide for the assessment of at least ten percent (10%) of the WCTS on average per year, resulting in the assessment of the entire WCTS at least once every ten years, and establish priorities and schedules taking into consideration the nature and extent of customer complaints; flow monitoring; location and cause of SSOs and WCTS deficiencies; any remediation work already ongoing; pump station run times; field crew work orders; any preliminary sewer assessments, such as flow monitoring results; community input; and any other relevant information.

**A Infrastructure Rehabilitation Program (IRP).** The IRP should establish procedures for setting priorities and schedules for undertaking rehabilitation of the WCTS. The IRP should address Infiltration/Inflow (I/I), structural issues in the WCTS, and the other conditions causing SSOs, with the goal of eliminating future SSOs. The IRP should take into account all previous information the City has gathered including any information gathered pursuant to the CSSAP. The IRP should also establish standard procedures to analyze the effectiveness of completed rehabilitation projects.

**A Pump Station Operations and Preventive Maintenance Program.** The Pump Station Operation and Preventive Maintenance Program should include or address the following items/components described below:

- i. Pump station operations at pump stations that are to be conducted on a routine, scheduled basis. The program should define the standard pump station operating procedures to be followed at each pump station such as reading and recording information from the elapsed time meters, recording information from the pump start counters, observing wet well conditions and grease accumulation, checking and re-setting, as necessary to improve system performance, wet well set points, checking and recording system pressure, checking SCADA components, checking alarms and stand-by power and identifying maintenance needs.
- ii. Emergency pump station operations procedures. The program should address pump station operations at pump stations that are to be conducted as a result of equipment failure or loss of electrical power. The program should define the emergency pump station operating procedures to be followed at each pump station such as calling for emergency maintenance, initiating stand-by power by bringing in portable generators or initiating portable pump operations for pump around.
- iii. The program should establish schedules, routes, priorities, standard forms and reporting procedures and establish minimum acceptable performance measures and condition grading criteria.

Preventive maintenance and inspection programs can have a significant positive impact on the future condition of the WCTS. A properly implemented preventive maintenance, inspection and rehabilitation programs can prevent a massive outlay of expenses needed to repair or replace parts of the system that City personnel 'did not see' failing due to the lack of prevention. Relatively small preventive maintenance expenses now can save the City larger repair expenses in the future. Formal guidance can also be used to educate City officials, such as the Mayor and City Council responsible for funding decisions and the allocation of resources essential to proper operation and maintenance of the utility.

**e. Sewer Overflow Response Plan**

The EPA recommends that the City update its existing SORP to include procedures for estimating SSO volumes.

**ENCLOSURE B**

**NPDES Permits Effluent Limit Exceedances**

South WWTP - MS0020117

Violation Type	Violation Information	Violation Code	Violation Date	RNC Detection Code-Date	RNC Resolution Code-Date
<u>Single Event Violation</u>	D0011 Permit Violations - Discharge Without a Valid Permit	D0011	3/15/2010	J-03/15/2010	8-08/30/2010
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C2	E90	4/30/2009		
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C2	E90	8/31/2009	X-09/14/2009	9-09/28/2009
<u>Effluent Violation</u>	001 N 00300 Oxygen, dissolved [DO] Effluent Gross Season ID:0 C1	E90	9/30/2009	X-10/22/2009	9-10/22/2009
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	9/30/2009	T-10/31/2009	2-07/31/2010
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	9/30/2009	X-10/22/2009	9-11/02/2009
<u>Effluent Violation</u>	001 N 00300 Oxygen, dissolved [DO] Effluent Gross Season ID:0 C1	E90	10/31/2009		
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	10/31/2009	T-10/31/2009	2-07/31/2010
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	10/31/2009		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C2	E90	11/30/2009	T-04/30/2010	3-08/30/2010
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C3	E90	11/30/2009		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 C3	E90	12/31/2009		
<u>Effluent Violation</u>	001 N 74055 Coliform, fecal general Effluent Gross Season ID:0 C2	E90	12/31/2009		
<u>Effluent Violation</u>	001 N 74055 Coliform, fecal general Effluent Gross Season ID:0 C3	E90	12/31/2009		
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	1/31/2010	T-01/31/2010	2-07/31/2010

South WWTP - MS0020117

Violation Type	Violation Information	Violation Code	Violation Date	RNC Detection Code-Date	RNC Resolution Code-Date
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	1/31/2010		
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	2/28/2010		
<u>Effluent Violation</u>	001 N 74055 Coliform, fecal general Effluent Gross Season ID:0 C2	E90	2/28/2010		
<u>Effluent Violation</u>	001 N 74055 Coliform, fecal general Effluent Gross Season ID:0 C3	E90	2/28/2010		
<u>Effluent Violation</u>	001 N 81010 BOD, 5-day, percent removal Percent Removal Season ID:0 C1	E90	2/28/2010		
<u>Effluent Violation</u>	001 N 81011 Solids, suspended percent removal Percent Removal Season ID:0 C1	E90	2/28/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 Q2	E90	3/31/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 C2	E90	3/31/2010	V-06/30/2010	3-08/30/2010
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 C3	E90	3/31/2010		
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	3/31/2010	T-03/31/2010	2-07/31/2010
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	3/31/2010		
<u>Effluent Violation</u>	001 N 74055 Coliform, fecal general Effluent Gross Season ID:0 C3	E90	3/31/2010		
<u>Effluent Violation</u>	001 N 81010 BOD, 5-day, percent removal Percent Removal Season ID:0 C1	E90	3/31/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 Q2	E90	4/30/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 C2	E90	4/30/2010	T-06/30/2010	3-08/30/2010

South WWTP - MS0020117

Violation Type	Violation Information	Violation Code	Violation Date	RNC Detection Code-Date	RNC Resolution Code-Date
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:1 C3	E90	4/30/2010		
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	4/30/2010	T-04/30/2010	2-07/31/2010
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	4/30/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 Q2	E90	5/31/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C2	E90	5/31/2010	V-06/30/2010	3-08/30/2010
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C3	E90	5/31/2010		
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	5/31/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 Q1	E90	6/30/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 Q2	E90	6/30/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C2	E90	6/30/2010	T-06/30/2010	5-11/26/2012
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C3	E90	6/30/2010		
<u>Effluent Violation</u>	001 N 00400 pH Effluent Gross Season ID:0 C1	E90	7/31/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 Q2	E90	7/31/2010		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C2	E90	7/31/2010	T-07/31/2010	5-11/26/2012
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C3	E90	7/31/2010		
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C2	E90	6/30/2012	X-07/19/2012	9-09/05/2012

South WWTP - MS0020117					
Violation Type	Violation Information	Violation Code	Violation Date	RNC Detection Code-Date	RNC Resolution Code-Date
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	6/30/2012	X-07/19/2012	9-09/05/2012
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	6/30/2012	X-07/19/2012	9-09/05/2012
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C2	E90	10/31/2012	Y-11/19/2012	9-11/26/2012
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C3	E90	10/31/2012	X-11/19/2012	9-11/26/2012
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C2	E90	12/31/2012	Y-01/17/2013	9-04/02/2013
<u>Effluent Violation</u>	001 N 01119 Copper, total recoverable Effluent Gross Season ID:0 C3	E90	12/31/2012	Y-01/17/2013	9-04/02/2013
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C2	E90	12/31/2012	Y-01/17/2013	9-04/02/2013
<u>Effluent Violation</u>	001 N 50060 Chlorine, total residual Effluent Gross Season ID:0 C3	E90	12/31/2012	Y-01/17/2013	9-04/02/2013
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C3	E90	9/30/2013		
<u>Effluent Violation</u>	001 N 00610 Nitrogen, ammonia total [as N] Effluent Gross Season ID:0 C2	E90	11/30/2013	X-01/15/2014	9-02/11/2014
<u>Effluent Violation</u>	101 A 50060 Chlorine, total residual Effluent Gross Season ID:0 C1	E90	12/31/2013	X-01/25/2014	9-02/14/2014

East WWTP - MS0055735			
Violation Type	Violation Information	Violation Code	Violation Date
Effluent Violation	001 A 01114 Lead, total recoverable Effluent Gross Season ID:0 C2	E90	9/30/2009
Effluent Violation	001 A 00310 BOD, 5-day, 20 deg. C Effluent Gross Season ID:0 Q2	E90	6/30/2011
Effluent Violation	001 A 00310 BOD, 5-day, 20 deg. C Effluent Gross Season ID:0 C3	E90	6/30/2011
Effluent Violation	001 A 00400 pH Effluent Gross Season ID:0 C3	E90	6/30/2011
Effluent Violation	001 A 00400 pH Effluent Gross Season ID:0 C3	E90	7/31/2011
Effluent Violation	001 A 00400 pH Effluent Gross Season ID:0 C3	E90	9/30/2011
Effluent Violation	001 A 00310 BOD, 5-day, 20 deg. C Effluent Gross Season ID:0 C3	E90	10/31/2011
Effluent Violation	001 A 00530 Solids, total suspended Effluent Gross Season ID:0 C2	E90	2/29/2012
Effluent Violation	001 A 81011 Solids, suspended percent removal Percent Removal Season ID:0 C1	E90	2/29/2012

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4  
ATLANTA FEDERAL CENTER  
61 FORSYTH STREET  
ATLANTA, GEORGIA 30303-8960

**JUN 25 2014**

**CERTIFIED MAIL** 7012 1010 0002 0759 6113  
**RETURN RECEIPT REQUESTED**

The Honorable Percy Bland  
Mayor of Meridian  
601 23rd Avenue  
Meridian, Mississippi 39302

Re: Approval of Extension to Respond to the May 6, 2014 Information Request and Request for Supplemental Information Pursuant to Section 308 of the Clean Water Act National Pollutant Discharge Elimination System Permit Nos.: MS0020117 and MS0055735 Meridian South Publicly Owned Treatment Works and Meridian East Publicly Owned Treatment Works

Dear Mayor Bland:

Based on conversations held on June 5, 2014, and June 18, 2014, between the U.S. Environmental Protection Agency Region 4, the City of Meridian (the City) and the Mississippi Department of Environmental Quality (MDEQ), the EPA hereby agrees to extend the deadline for the City's submittal of a response to the EPA's May 6, 2014, Information Request (IR) issued pursuant to Section 308 of the Clean Water Act (CWA), 33 U.S.C. § 1318, from June 11, 2014, to July 11, 2014.

The EPA deems the sanitary sewer overflow (SSO) list submitted electronically by the City's legal counsel Michael Goggans, on June 17, 2014, in response to Question 3 in the IR to be incomplete because, in part, it does not contain a complete list of SSOs reported to MDEQ during September 2008 to May 6, 2014, and SSOs observed by the EPA during its April 2014 Compliance Evaluation Inspection. As stated in the IR, SSO is defined as an overflow, spill, release or diversion of wastewater from the sanitary sewer system. SSOs include overflows or releases of wastewater that reach waters of the U.S.; overflows or releases of wastewater that do not reach waters of the U.S.; and wastewater backups into buildings that are caused by blockages or flow conditions in a sanitary sewer other than a building lateral. Wastewater backups into buildings caused by a blockage or other malfunction of a building lateral that is privately owned is not an SSO. The City's response to Question 3 is required to include, in part, all SSOs as defined by the above definition for the time period of September 2008 to May 6, 2014. No response has been provided by the City to date for any of the additional questions contained in the IR.

In addition to providing a complete response to the EPA's IR, the EPA also requests additional information detailed below:

1. Please provide a description of the proposed pump station project to divert flow from the City's sewer to the East Wastewater Treatment Plant (WWTP), including anticipated commencement and completion dates, drawings, costs to install the pump station and sewer pipes, pump capacity and any operating plans for the pump station, including how it will be operated to divert flow during wet weather.
2. Please provide flow monitoring data relating to the pump station design to divert flow to the East WWTP.
3. Please provide a list of any currently proposed or contractor requested sewer expansion projects, including dates of anticipated commencement and completion of such projects and estimated costs for such projects.
4. Please provide a list of any currently proposed or planned pump station projects (such as additions, rehabilitation and/or repair) other than the proposed pump station project to divert flow to the East WWTP, including dates of anticipated commencement and completion of such projects and estimated costs for such projects.
5. Please provide a narrative description relating to the Phase 1 and Phase 2 South WWTP rehabilitation projects discussed by the City's representatives during the June 18, 2014, teleconference, including, but not limited to, narrative project descriptions, dates of anticipated commencement and completion of such projects and any cost estimates for each such project.
6. Please provide a copy of the 2007 sewer assessment/sewer survey report/documents discussed during the June 5, 2014, teleconference.
7. Please provide the most recent National Pollutant Discharge Elimination System permit application submitted to MDEQ regarding the consolidation of the East and South WWTPs.
8. Please provide a narrative description discussing the actions taken or to be taken by the City to address the effluent limit exceedances contained in Enclosure B to the EPA's May 6, 2014, correspondence, including, but not limited, to a timeline for implementation and completion of each such action and cost estimates broken down for each of the actions to be taken.
9. If not previously provided in response to the above questions, please provide a narrative description of actions taken or to be taken to address each of the concerns contained in the EPA's Inspection Report dated April 18, 2014, including, but not limited to, a timeline for implementation and completion of each such action and cost estimates broken down for each of the actions to be taken.
10. For any SSOs included on the SSO list provided to the EPA by the City on June 17, 2014, which have not been reported to MDEQ, please provide an explanation for why each such SSO has not been reported to MDEQ.

The City is required to respond to the May 6, 2014 Information Request and this Supplemental Information Request on or before July 11, 2014. The response should be directed to:

Ms. Sara Schiff, Enforcement Officer  
U.S. Environmental Protection Agency, Region 4  
Clean Water Enforcement Branch  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303-8960

The City's response to both the IR and this Supplemental Information Request should specifically reference the particular Information Request, including the section and number of the Information Request and should be organized for the purpose of clarity. Additionally, all information submitted in response thereto must be accompanied by the following certification signed by a responsible City official in accordance with 40 C.F.R. § 122.22:

"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Failure to completely comply with both the IR and this Supplemental Information Request may result in enforcement proceedings under Section 309 of the CWA, 33 U.S.C. § 1319, which could result in the judicial imposition of civil or criminal penalties or the administrative imposition of civil penalties. In addition, there is potential criminal liability for the falsification of any response to the requested information.

The City shall preserve, until further notice, all records (either written or electronic) which exist at the time of receipt of the IR that relate to any of the matters set forth in that Information Request or this Supplemental Information Request. The term "records" shall be interpreted in the broadest sense to include information of every sort. The response to this Information Request shall include assurance that these record protection provisions were put in place as required. No such records shall be disposed of until written authorization is received from the Chief of the Clean Water Enforcement Branch at the U.S. EPA, Region 4.

Please feel free to contact Ms. Schiff at (404) 562-9870 or by email at [schiff.sara@epa.gov](mailto:schiff.sara@epa.gov), if you have questions regarding either the IR or this Supplemental Information Request. Legal inquiries should be directed to Ms. Tanya Floyd, Associate Regional Counsel at (404) 562-9813 or by email at [floyd.tanya@epa.gov](mailto:floyd.tanya@epa.gov).

Sincerely,



Denisse D. Diaz, Chief  
Clean Water Enforcement Branch  
Water Protection Division

Enclosure

cc: Mr. Michael Goggans  
Counsel for City of Meridian

Mr. Hugh Smith  
City of Meridian

Mr. Chris Sanders  
Mississippi Department of Environmental Quality

Mr. Les Herrington  
Mississippi Department of Environmental Quality

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## Armstrong, Kathy

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**From:** HughSmith@meridianms.org  
**Sent:** Tuesday, July 29, 2014 12:57 PM  
**To:** Janovitz, Sara  
**Subject:** Fw: EPA Cover letter Document  
**Attachments:** Sara Schiff 1 001.jpg; Sara Schiff 2 001.jpg; Sara Schiff 3 001.jpg; Sara Schiff 4 001.jpg; Sara Schiff 5 001.jpg; Sara Schiff 6 001.jpg

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

**Categories:** Record Saved - Shared

----- Forwarded by Hugh Smith/COM on 07/29/2014 11:56 AM -----  
**From:** Barbara Kidd/COM  
**To:** Hugh Smith/COM@MeridianMS.org  
**Date:** 07/18/2014 05:05 PM  
**Subject:** Safe Water Document

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The pages were scanned in back to front therefore, page 1 is actually page six.  
My best,  
BarbaraK



**MERIDIAN**

CITY OF MERIDIAN

July 18, 2014

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**Mayor:**

PERCY BLAND, III  
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FAX: (601) 485-1911

**Council Members:**

GEORGE M. THOMAS  
Ward 1

K. DUSTIN MARKHAM  
Ward 2

BARBARA HENSON  
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KIM HOUSTON  
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COUNCIL CLERK  
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**CITY DEPARTMENTS:**

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**Police:**  
(601) 485-1841  
FAX: (601) 484-6832

**Public Works:**  
(601) 485-1920  
FAX: (601) 485-1864

Sara Schiff, Enforcement Officer  
U.S. Environmental Protection Agency, Region 4  
Clean Water Enforcement Branch  
61 Forsyth Street, S.W.  
Atlanta, Georgia, 30303-8960

**Subject:** U.S. Environmental Protection Agency and Mississippi  
Department of Environmental Quality Compliance Evaluation  
Inspection  
NPDES Permit Nos. MS0020117 and MS0055735  
Meridian South POTW and Meridian East POTW  
Response to Notice of Violation and Information Request and  
Supplemental Information Request

Dear Ms. Schiff:

The City of Meridian (City) is responding to U.S. Environmental Protection Agency's Clean Water Act Section 308 Notice of Violation and Information Requests, dated May 6, 2014 and June 25, 2014, regarding the City's South Wastewater Treatment Plant (WWTP) and the City's East WWTP. Responses to the individual questions in the Information Requests are provided below. In some cases, the requested information is described within this letter with supplemental data included as a separate appendix to this letter. We appreciate the opportunity to respond to your concerns.

**Provide the date and street address for the work orders provided to the EPA during the Compliance Evaluation Inspection from January 2011 to Present**

The complete work order database from January 2011 to May 6, 2014 is included on the enclosed disc as **Appendix A**. The information includes the date and street address for each work order.

**What does the "Line Numb" column represent in the spreadsheet submitted to the EPA during the CEI?**

The following language is a summary of response email sent from City of Meridian's IT Department on 4/29/2014: The "Line Numb" column is the verification code to locate requests that are made to MS 811 (the statewide utility location service). For example, a line number of 14042508510158 would be broken down as follows: the first six numbers represent the date (140425= April 25, 2014), the next four numbers represent the time the request was made (0851=08:51 a.m.), and the last four numbers represent the actual request number of the day (0158=158). Locate requests are always entered into the system, along with a follow-up work order, to the address to

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Meridian, MS 39302-1430  
www.meridianms.org

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which the request pertains. The follow-up work order usually contains the finalized summary of the work done, the materials used and total time required to complete the job.

**Provide a listing of all SSOs that occurred from September 2008 to the present.**

A substantially complete listing of all SSOs that occurred from September 2008 through May 6, 2014 is included on the enclosed disc as **Appendix B**. During the compilation of this information, inconsistencies were identified between the City's SSO list, the Mississippi Department of Environmental Quality's (MDEQ) SSO list, and the SSO Reporting Forms provided to MDEQ. In an effort to ensure that the information provided is as complete and accurate as possible, the City is working diligently reconcile these inconsistencies. Pending a conversation with MDEQ officials, the City is committed to providing a further revised listing of all SSOs to the EPA by July 31, 2014. The City's Sewer Overflow Response Plan (SORP) is included on the enclosed disc as part of **Appendix B**.

The following questions and/or requests for information were submitted to the City of Meridian in EPA's Request for Supplemental Information letter:

**Please provide a description of the proposed pump station project to divert flow from the City's sewer to the East WWTP:**

CDM Smith has been retained to provide design services for the East Meridian Pump Station. The new station will collect the wastewater flow contributed by the Marion community and convey the wastewater via force main to the East WWTP. The new pump station will be designed as a precast duplex station with a firm capacity of 750 gpm. The station will have a slot for a future pump to receive flow from North Meridian and provide future flexibility. If the capacity of the station was to be exceeded, or there was a pump or power failure at the station, the design will allow wastewater flow to continue down the existing sewer line to the South WWTP. Additionally, the station will be designed to allow the capacity of the station to be increased to 1,400 gpm in the future by installing a parallel force main. The station shall be controlled by float switches and will communicate with the East WWTP's SCADA system via radio. The final plans and specifications are expected to be completed by the end of August 2014. City personnel will be constructing the pump station with an expected completion date of June 1, 2015. The estimated construction cost for the project is approximately \$250,000. A preliminary site plan, mechanical plan and section of the pump station are included on the enclosed disc as **Appendix C**.

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**Please provide flow monitoring data relating to the East Meridian Pump Station design:**

The pertinent flow monitoring data is included on the enclosed disc as **Appendix D.**

**Please provide a list of any currently proposed or contractor requested sewer expansion projects:**

There are currently no proposed or contractor requested sewer expansion projects.

**Please provide a list of any currently proposed or planned pump station projects other than the East Meridian Pump Station:**

There are currently no proposed or planned pump station projects other than the East Meridian pump station.

**Please provide a narrative description relating to the Phase 1 and Phase 2 South WWTP rehabilitation projects:**

The City initiated improvements to the South WWTP using a phased approach beginning in 2008 with rehabilitation to the WWTP's headworks. Phase 1 of the project included installation of a new mechanical bar screen upstream of the screw pumps, installation of two (2) new 6mm fine screens each with a washer/compactor downstream of the screw pumps, and modifications to the grit removal/cleaning system at the aerated grit basin including installation of a new screw conveyor, two (2) grit pumps, one (1) grit washer with conveyor/dewatering, one 48-inch diameter manhole, and refurbishing of existing swing air diffuser piping. During construction, the WWTP's existing headworks equipment including the mechanically cleaned bar screen, two (2) existing fine screens, screw conveyor and bucket conveyor with associated washer/conveyor was demolished. The project also included minor structural and electrical modifications within the headworks and other work incidental to the project.

The second phase of the rehabilitation to the South WWTP (*Process Mechanical and Electrical Upgrades*) is scheduled to advertise for bid on August 12, 2014 and August 19, 2014, as required by Public Bid Law, with bids to be opened September 12, 2014. The estimated construction cost for the project is approximately \$6,000,000. This project is funded by the Mississippi Department of Environmental Quality's (MDEQ) Water Pollution Control (Clean Water) Revolving Loan Fund (WPCRLF). The project includes the following items of work:

- Replacement or rebuilding of all existing process mechanical pumps located on the 4 MGD and 9 MGD trains. EPA's Inspection Report dated April 18, 2014 refers to these as the "old side" and "new side", respectively. Specifically this work includes the following:

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- Installation of new primary sludge and waste activated sludge (WAS) pumps and controls on 9 MGD train, installation of new primary sludge, return activated sludge (RAS), and WAS pumps and controls on 4 MGD train.
  - Installation of two (2) new RAS pumps and rebuilding of all 24 existing RAS pumps with new controls on the 9 MGD train.
  - Modification and replacement of existing sludge piping, valves, flow meters, and appurtenances to repair leaks and improve the transport of sludge throughout the WWTP.
- Modifications to the Blower Building including the installation of two (2) new blowers, air piping, piping components and a dissolved oxygen (DO) control system.
  - Replacement of the aeration header piping on the 9 MGD train.
  - Modifications to the digesters including the installation of one (1) new blower, replacement air piping, valves and appurtenances within the Digester Building and replacement of the coarse bubble diffuser system within the digesters. Modifications also include cleaning of both digesters prior to replacement of the diffuser system.
  - Modifications to the Non-Potable Water (NPW) Pump Room including installation of hydro-pneumatic booster pumping system.
  - Modifications and upgrades to the WWTP's electrical equipment including the addition of two (2) new emergency generators and new LED site lighting.

## **Please provide a copy of the 2007 sewer assessment/sewer survey report/documents:**

The 2010 Wastewater Collection System Rehabilitation Program Final Report by Carollo Engineers is included on the enclosed disc as **Appendix E**.

## **Please provide the most recent NPDES permit application submitted to MDEQ regarding the consolidation of the East and South WWTPs:**

The permit application and NPDES permit is included on the enclosed disc as **Appendix F**.

## **Please provide a narrative description discussing the actions taken, or to be taken by the City to address the effluent limit exceedances contained in Enclosure B to the EPA's May 6, 2014 correspondence:**

The Phase 2 South WWTP project, *Process Mechanical and Electrical Upgrades*, is expected to address particular effluent limit exceedances including ammonia, dissolved oxygen (DO), and 5-day BOD through the

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[www.meridianms.org](http://www.meridianms.org)

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installation of new blowers, air piping improvements and sludge piping improvements, which should allow the biological treatment portion of the WWTP to nitrify the wastewater as designed for ammonia removal. The Phase 2 electrical improvements and installation of emergency generators will allow the WWTP to continue biological treatment of wastewater during power outages thus minimizing effluent limit exceedances in those circumstances.

All but one of the effluent limit exceedances by the East WWTP-MS0055735 were addressed by covering the plant's equalization basin with a modular insulated cover. This cover prevented algae growth in the equalization basin which was determined to be the cause of most of the plant's effluent limit exceedance. The effluent limit exceedance on lead has not reoccurred.

**Please provide a narrative description of actions taken or to be taken to address each of the concerns contained in the EPA's Inspection Report dated April 18, 2014:**

In addition to addressing effluent limit exceedances as described above, the Phase 2 South WWTP project, *Process Mechanical and Electrical Upgrades*, should address particular concerns contained in EPA's Inspection Report dated April 18, 2014. For example, the installation of new blowers, air piping improvements and sludge piping improvements will eliminate leaks in the RAS piping and allow the WWTP to operate at higher mixed liquor suspended solids (MLSS) concentrations if required to improve biological treatment.

With respect to SSOs, the City intends to perform rehabilitation work on the trunk line where many SSOs occur. Additionally, the East Meridian Pump Station, which is currently being designed, will further reduce SSOs once construction is complete.

The City also plans to implement a comprehensive Fats, Oil and Grease (FOG) Control program along with a CCTV inspection program. Furthermore, the City plans to update the Work Order program and the City will also update the Asset Management program. All of these items are steps towards completion of a Capacity, Management, Operation, and Maintenance (CMOM) Assessment.

**For any SSOs included in the SSO list provided to the EPA by the City of June 17, 2014, which have not been reported to MDEQ, please provide an explanation for why each such SSO has not been reported to MDEQ:**

As previously discussed, the City is compiling a list of SSOs along with the specific requested information related to each event as outlined in the EPA information request. A preliminary list of this information is included with this letter; however, the final listing of all SSOs will be provided at the earliest possible date but no later than July 31, 2014.

# MERIDIAN

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We appreciate the additional time that EPA has provided in responding to your information request. On behalf of the City, I commit the full cooperation of city resources to address your questions and to address the concerns that have been expressed as related to the performance of the City's wastewater system.

**Mayor:**

PERCY BLAND, III  
(601) 485-1927  
FAX: (601) 485-1911

**Council Members:**

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Ward 1

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COUNCIL CLERK  
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I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Sincerely,



Percy Bland

Mayor

City of Meridian, Mississippi

**CITY DEPARTMENTS:**

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cc: Mississippi Department of Environmental Quality  
Hugh Smith, Jr., City of Meridian  
Michael D. Goggans, The Goggans Law Firm, PLLC

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## **Armstrong, Kathy**

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**From:** Schiff, Sara  
**Sent:** Thursday, June 12, 2014 7:56 AM  
**To:** 'HughSmith@meridianms.org'  
**Subject:** FW: Meridian, MS Call - June 18th at 11 a.m. (Eastern)/10 a.m. (Central)

Hugh-

Good morning. I just got your voicemail about setting up a conference call. Did you receive this email below with a proposed time?

Thanks-

Sara Schiff  
(404) 562-9870

**From:** Floyd, Tanya  
**Sent:** Wednesday, June 11, 2014 12:26 PM  
**To:** HughSmith@meridianms.org; Schiff, Sara; michael@gogganslaw.com  
**Cc:** Sayre, Dennis; chris\_sanders@deq.state.ms.us; Mike McGrevey; Matthew Horton; Chris\_Wells@deq.state.ms.us; Horsey, Maurice  
**Subject:** Meridian, MS Call - June 18th at 11 a.m. (Eastern)/10 a.m. (Central)

Michael and Hugh,

The EPA and MDEQ are available for a call on Wednesday, June 18<sup>th</sup>, at 11:00 a.m. (Eastern)/10:00 a.m. (Central).

The EPA will send out a conference number prior to the call. Please let me know if the City will need more than 2 separate phone lines for the call.

Best regards,  
Tanya

Tanya Floyd  
Associate Regional Counsel  
U.S. Environmental Protection Agency, Region 4  
Office of Environmental Accountability  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303  
Phone: (404) 562-9813  
Email: [floyd.tanya@epa.gov](mailto:floyd.tanya@epa.gov)

**From:** [HughSmith@meridianms.org](mailto:HughSmith@meridianms.org) [<mailto:HughSmith@meridianms.org>]  
**Sent:** Friday, June 06, 2014 4:31 PM  
**To:** Schiff, Sara  
**Cc:** Sayre, Dennis; Floyd, Tanya; [chris\\_sanders@deq.state.ms.us](mailto:chris_sanders@deq.state.ms.us); Mike McGrevey; Matthew Horton  
**Subject:** Re: Revised Agenda

Ms. Schiff,

The proposed dates and times for our next conference call are:  
6/18, 9-4pm; 6/19, 9-4pm and 6/20, 12-4 pm.

Thank you,

Hugh Smith  
Director of Public Works  
City of Meridian  
Cell: (601) 934-7406  
Office: (601) 485-1920

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## Armstrong, Kathy

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**From:** Strube, Diane <dstrube@balch.com>  
**Sent:** Monday, July 20, 2015 12:49 PM  
**To:** Ben McMurtray; Bush, William; Bunky Partridge; Baschon, Carol; David Sloan; David Whitaker; Sayre, Dennis; Dustin Markham; Gretchen Zmitrovich; Harold Underwood; Hugh Smith; Jim Harvey ; Kim Houston; Les Herrington ; Louis Jackson; Matthew Horton; Mike McGhee; Percy Bland; Randy Hammon ; Glaze, Rich; Riche McAlister; Ronnie Walton; Janovitz, Sara; Stacey Thompson; McKinney, Steve; Wayne Miles  
**Subject:** FW: Wednesday, July 15, 2015 Meridian Meeting With EPA  
**Attachments:** July 15, 2015 Sign in Sheet.pdf; Sign In Sheet 07.15.15.docx

Dear All,

At the request of Rich Glaze, I am attaching the original Sign In Sheet for the Wednesday, July 15, 2015 meeting and a printed version.

Thank you.

**BALCH**  
& BINGHAM LLP

Diane Strube, Legal Secretary, Balch & Bingham LLP  
30 Ivan Allen Jr. Boulevard, N.W. • Suite 700 • Atlanta, GA 30308-3036  
t: (404) 962-3599 f:(866) 547-3431 e: [dstrube@balch.com](mailto:dstrube@balch.com)  
[www.balch.com](http://www.balch.com)

## City of Meridian – Sign In Sheet

July 15, 2015

Dustin Markham	City of Meridian (left early)	<a href="mailto:Kennethmarkham@meridianms.org">Kennethmarkham@meridianms.org</a>
Hugh Smith	City of Meridian	<a href="mailto:hughsmith@meridianms.org">hughsmith@meridianms.org</a>
Randy Hammon	City of Meridian	<a href="mailto:rbhammon@gmail.com">rbhammon@gmail.com</a>
Les Herrington	MDEQ	<a href="mailto:Lherrington@deq.state.ms.us">Lherrington@deq.state.ms.us</a>
Gretchen Zmitrovich	MDEQ legal	<a href="mailto:Gretchen_zmitrovich@mdeq.ms.gov">Gretchen_zmitrovich@mdeq.ms.gov</a>
Jim Harvey	MDEQ	<a href="mailto:jim_harvey@deq.state.ms.us">jim_harvey@deq.state.ms.us</a>
Carol Baschon	EPA	<a href="mailto:baschon.carol@epa.gov">baschon.carol@epa.gov</a>
Bill Bush	EPA	<a href="mailto:bush.william@epa.gov">bush.william@epa.gov</a>
Mike McGhee	CDM (consultant)	<a href="mailto:rmcghee2@bellsouth.net">rmcghee2@bellsouth.net</a>
Wayne Miles	CDM Smith	<a href="mailto:milesw@cdmsmith.com">milesw@cdmsmith.com</a>
Rich Glaze	Balch & Bingham	<a href="mailto:rglaze@balch.com">rglaze@balch.com</a>
David Whitaker	City of Meridian	<a href="mailto:davidwhitaker@meridianms.org">davidwhitaker@meridianms.org</a>
Percy Bland	City of Meridian	<a href="mailto:percybland@meridianms.org">percybland@meridianms.org</a>
Kim Houston	City of Meridian	<a href="mailto:kim4council@yahoo.com">kim4council@yahoo.com</a>
Ronnie Walton	City Attorney	<a href="mailto:Ronnie@gloveryoung.com">Ronnie@gloveryoung.com</a>
David Sloan	City of Meridian	<a href="mailto:DavidSloan@meridianms.org">DavidSloan@meridianms.org</a>
Dennis Sayre	EPA Region 4	<a href="mailto:sayre.dennis@epa.gov">sayre.dennis@epa.gov</a>
Sara Janovitz	EPA Region 4	<a href="mailto:janovitz.sara@epa.gov">janovitz.sara@epa.gov</a>
Bunky Partridge	City of Meridian	<a href="mailto:bunkypartridge@meridianms.org">bunkypartridge@meridianms.org</a>
Steve McKinney	Balch & Bingham	<a href="mailto:smckinney@balch.com">smckinney@balch.com</a>
Ben McMurtray	City Attorney	<a href="mailto:ben@gloveryoung.com">ben@gloveryoung.com</a>
Richie McAlister	City of Meridian	<a href="mailto:richiemcalister@meridianms.org">richiemcalister@meridianms.org</a>
Stacey Thompson	City of Meridian	<a href="mailto:staceythompson@meridianms.org">staceythompson@meridianms.org</a>
Matthew Horton	CDM Smith	<a href="mailto:hortonmr@cdmsmith.com">hortonmr@cdmsmith.com</a>
Harold Underwood	CDM Smith	<a href="mailto:underwoodh@cdmsmith.com">underwoodh@cdmsmith.com</a>
Louis Jackson	CDM Smith	<a href="mailto:jacksonll@cdmsmith.com">jacksonll@cdmsmith.com</a>

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## Armstrong, Kathy

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**From:** Sayre, Dennis  
**Sent:** Friday, April 25, 2014 10:00 AM  
**To:** hughsmith@meridianms.org  
**Cc:** Janovitz, Sara  
**Subject:** Meridian data base information

**Categories:** Record Saved - Shared

Good morning Hugh,

I was looking at the data that your IT folks provided. Below is an example of the data. Can you please ask them to run another search and provide additional data that is associated with the work orders, such as the date and street address. It may be easier just to provide all data available in a spreadsheet for Dept 267. Also, can someone in your department provide a coordinates map or GIS layer that provides the location coordinates that the city is using along with an explanation of how these coordinates are used? For example, where is "LOCATION #10100616531123?" What does the "Line Numb" column represent. They can email me the Excel spreadsheet and any other data.

We are currently drafting a 308 information request letter for additional information regarding SSO records and such but it's just easier to do this separate from that request.

Thanks,  
Dennis

Work Order Year	Work Order Dept	Work Order Numb	Work Order Source	Source Description	Line Numb	Comment
11	267	23	WO	Work Order Comment	1	REPAIR SEWER CAVE-IN
11	267	23	WO	Work Order Comment	3	LOCATE #10100616531123
11	267	25	WO	Work Order Comment	1	REPAIR SEWER
11	267	25	WO	Work Order Comment	3	LOCATE #10083114360674
11	267	69	WO	Work Order Comment	1	REPAIR SEWER LINE
11	267	69	WO	Work Order Comment	3	EMERGENCY LOCATE #101014

Dennis J. Sayre | Environmental Engineer | Inspector  
Clean Water Enforcement Branch | Municipal & Industrial Enforcement Section  
U.S. EPA Region 4 | 61 Forsyth St., SW | Atlanta, Georgia 30303  
(404) 562-9756

"A candle loses nothing by lighting another candle."

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**Armstrong, Kathy**

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**From:** Schiff, Sara  
**Sent:** Tuesday, July 29, 2014 2:20 PM  
**To:** 'HughSmith@meridianms.org'  
**Cc:** 'michael@gogganslaw.com'; Floyd, Tanya; Sayre, Dennis  
**Subject:** RE: EPA Cover letter Document

Hugh-

Thanks for sending the cover letter—it answered some initial questions I had after reviewing the attachments emailed to me last week. The City's response states that there are inconsistencies in the SSO data and that the City will submit a revised SSO list by July 31, 2014. Will this list be finished and emailed to me by this Thursday? Just as a reminder, a complete response to the Information Request was due on July 18, 2014, and anything not completely answered by July 18m 20104, could be a violation of Section 308 of the Clean Water Act.

Please let me know if you have any questions.

Sara Schiff  
(404) 562-9870

**From:** HughSmith@meridianms.org [mailto:HughSmith@meridianms.org]  
**Sent:** Tuesday, July 29, 2014 12:57 PM  
**To:** Schiff, Sara  
**Subject:** Fw: EPA Cover letter Document

----- Forwarded by Hugh Smith/COM on 07/29/2014 11:56 AM -----  
**From:** Barbara Kidd/COM  
**To:** [Hugh\\_Smith/COM@MeridianMS.org](mailto:Hugh_Smith/COM@MeridianMS.org)  
**Date:** 07/18/2014 05:05 PM  
**Subject:** Safe Water Document

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The pages were scanned in back to front therefore, page 1 is actually page six.  
My best,  
BarbaraK

## Armstrong, Kathy

---

**From:** Sayre, Dennis  
**Sent:** Friday, June 06, 2014 11:05 AM  
**To:** michael@gogganslaw.com  
**Cc:** Janovitz, Sara; Horsey, Maurice; Floyd, Tanya  
**Subject:** RE: EPA's Clean Water Act Settlement Penalty Policy

**Categories:** Record Saved - Shared

For a little clarification. What we need in addition to a response to the issues in the inspection report are:

1. A description of the proposed pump station to divert flow from the City's sewer to the East Plant, including dates, drawings, costs to install the pump station and sewer pipes, pump capacity, and any operating plans for the pump station (how will it be operated to divert flow during wet weather).
2. Any currently proposed or contractor requested sewer expansion projects.
3. Any currently proposed or planned pump station projects (additions, rehabilitation, repair) other than #1 above.
4. Any currently proposed or planned treatment plant projects (additions, rehabilitation, repair).
5. Any documents relating to the 2009 sewer assessment mentioned during our teleconference.
6. Any information regarding the East Plant and South Plant permit consolidation.
7. A current copy of any permit or permit applications regarding the consolidation of the East/South Plant flow.
8. Any information regarding diverting flow to the power plant (anticipated dates)

As stated in our conversation. We will need to take a close look at the entire sewer system. What that will entail is conducting a flow analysis throughout the system and calibrated hydraulic model of the main sewer trunks (at minimum) and, depending on the accuracy of your most current sewer map, sewer mapping to determine where the SSOs are occurring and where the excessive wet weather flow is coming from in order to target Infiltration and Inflow (I/I) removal in the system. I can say from experience that you should expect that a minimum 20%, to as much as 30% of your sewer system will need to be rehabilitated to reduce the I/I to a point that wet weather capacity will be achieved (that including the addition of the pump station, if it's feasible).

Best Regards,  
Dennis

Dennis J. Sayre | Environmental Engineer | Inspector  
Clean Water Enforcement Branch | Municipal & Industrial Enforcement Section  
U.S. EPA Region 4 | 61 Forsyth St., SW | Atlanta, Georgia 30303  
(404) 562-9756

"A candle loses nothing by lighting another candle."

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**From:** Floyd, Tanya  
**Sent:** Thursday, June 05, 2014 6:16 PM  
**To:** michael@gogganslaw.com

**Cc:** Schiff, Sara; Sayre, Dennis; Horsey, Maurice  
**Subject:** EPA's Clean Water Act Settlement Penalty Policy

Michael,

It was a pleasure to talk to you and other City representatives today.

The EPA looks forward to talking to City representatives again in approximately two weeks and receiving the City's response to its Inspection Report on or before July 11, 2014. We request that such response include a detailed narrative addressing the actions taken or to be taken by the City to address each of the concerns contained in the report, including, but not limited to, a timeline for implementation and completion of each such action and cost estimates broken down for each of the actions to be taken.

As requested, attached is a link to the EPA's Clean Water Act Settlement Penalty Policy (please see pages 17-20 for a discussion of the National Municipal Litigation Consideration, including Tables A and B):  
<http://www2.epa.gov/sites/production/files/documents/cwapol.pdf>

Please do not hesitate to contact me should you have any questions.

Best regards,  
Tanya

Tanya Floyd  
Associate Regional Counsel  
U.S. Environmental Protection Agency, Region 4  
Office of Environmental Accountability  
61 Forsyth Street, S.W.  
Atlanta, Georgia 30303  
Phone: (404) 562-9813  
Email: [floyd.tanya@epa.gov](mailto:floyd.tanya@epa.gov)

## Armstrong, Kathy

---

**From:** Janovitz, Sara  
**Sent:** Wednesday, July 15, 2015 8:58 AM  
**To:** 'Glaze, Rich'  
**Subject:** RE: New meeting location tomorrow

Rich-

Got it.

Thanks,

Sara Schiff Janovitz

(404) 562-9870

-----Original Message-----

**From:** Glaze, Rich [mailto:rglaze@balch.com]  
**Sent:** Tuesday, July 14, 2015 5:03 PM  
**To:** Bush, William; Janovitz, Sara  
**Subject:** New meeting location tomorrow

Meridian police department; 510 22d avenue, meridian 39301. Please confirm receipt.

t

Sent from my mobile device

[[image]]

Richard E. Glaze, Partner, Balch & Bingham LLP  
30 Ivan Allen Jr. Boulevard, N.W. • Suite 700 • Atlanta, GA 30308-3036  
t: (404) 962-3566 c: (404) 431- 4350 f:(866) 661-3268 e: rglaze@balch.com www.balch.com<<http://www.balch.com/>>

**Armstrong, Kathy**

---

**From:** HughSmith@meridianms.org  
**Sent:** Tuesday, March 15, 2016 9:26 AM  
**To:** Janovitz, Sara  
**Subject:** Re: Rain/Flooding

Sara,

First, let me say thank you for asking me about how we where impacted by last weeks rain event. Although we reported several SSO's they where localized and diluted from the rain water, the plant held up very well. All in all...last weeks rain event did not have a large impact own our POTW. I look foreword to seeing you soon.

HS

From: Janovitz.Sara@epa.gov  
To: hughsmith@meridianms.org  
Date: 03/14/2016 07:18 AM  
Subject: Rain/Flooding

---

Hugh-

Hope you had a great weekend. Just wanted to check in and see if/how badly Meridian was impacted by the recent rainfall. How's everything at the WWTP?

Thanks,  
Sara Janovitz

## Armstrong, Kathy

---

**From:** Janovitz, Sara  
**Sent:** Tuesday, March 15, 2016 9:27 AM  
**To:** 'HughSmith@meridianms.org'  
**Subject:** RE: Rain/Flooding

Hugh-

That's good to hear. Hope you have a great day!

**Sara Schiff Janovitz**

(404) 562-9870

**From:** HughSmith@meridianms.org [mailto:HughSmith@meridianms.org]  
**Sent:** Tuesday, March 15, 2016 9:26 AM  
**To:** Janovitz, Sara  
**Subject:** Re: Rain/Flooding

Sara,

First, let me say thank you for asking me about how we where impacted by last weeks rain event. Although we reported several SSO's they where localized and diluted from the rain water, the plant held up very well. All in all...last weeks rain event did not have a large impact own our POTW. I look foreword to seeing you soon.

HS

From: Janovitz.Sara@epa.gov  
To: hughsmith@meridianms.org  
Date: 03/14/2016 07:18 AM  
Subject: Rain/Flooding

---

Hugh-

Hope you had a great weekend. Just wanted to check in and see if/how badly Meridian was impacted by the recent rainfall. How's everything at the WWTP?

Thanks,  
Sara Janovitz

## Armstrong, Kathy

---

**From:** Schiff, Sara  
**Sent:** Tuesday, July 29, 2014 8:47 AM  
**To:** 'HughSmith@meridianms.org'  
**Subject:** RE: Response letter and appendices

Hugh-

Good morning. Did you see my email yesterday? Was the response letter and appendices supposed to be included in the attachments? I didn't see it. If so, please go resend it.

Thanks,

Sara Schiff  
(404) 562-9870

-----Original Message-----

From: HughSmith@meridianms.org [mailto:HughSmith@meridianms.org]  
Sent: Friday, July 25, 2014 6:58 PM  
To: Floyd, Tanya; Schiff, Sara  
Cc: percybland@meridianms.org; "mikemcgrevey@meridianms.org"@MeridianMS.org; ronnie@cloveryoung.com; michael@gogganslaw.com; Barbara\_Kidd/COM@MeridianMS.org  
Subject: Response letter and appendices

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## Armstrong, Kathy

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**From:** Schiff, Sara  
**Sent:** Friday, May 30, 2014 9:30 AM  
**To:** 'HughSmith@meridianms.org'  
**Subject:** RE: Show Cause Meeting Times

That should work for us.

Thanks!

Sara Schiff  
(404) 562-9870

**From:** HughSmith@meridianms.org [mailto:HughSmith@meridianms.org]  
**Sent:** Friday, May 30, 2014 9:02 AM  
**To:** Schiff, Sara  
**Subject:** RE: Show Cause Meeting Times

Sara,

I am sorry I did not specify, but it would be central time.

HS

**From:** "Schiff, Sara" <Schiff.Sara@epa.gov>  
**To:** "HughSmith@meridianms.org" <HughSmith@meridianms.org>  
**Date:** 05/30/2014 06:11 AM  
**Subject:** RE: Show Cause Meeting Times

---

Hugh-

9:30 eastern time or central time? I need to double check with my attorney, but I'll let you know shortly.

Thanks,

Sara Schiff  
(404) 562-9870

**From:** HughSmith@meridianms.org [mailto:HughSmith@meridianms.org]  
**Sent:** Thursday, May 29, 2014 6:59 PM  
**To:** Schiff, Sara  
**Subject:** RE: Show Cause Meeting Times

Ms. Sara,

I have gotten everyone on my end to agree to a conference call on Thursday, June 5th at 9:30 am. I really hope this works for you as well, and I apologize for taking so long on this.

HS

From: "Schiff, Sara" <[Schiff.Sara@epa.gov](mailto:Schiff.Sara@epa.gov)>  
To: "[HughSmith@meridianms.org](mailto:HughSmith@meridianms.org)" <[HughSmith@meridianms.org](mailto:HughSmith@meridianms.org)>  
Date: 05/28/2014 06:57 AM  
Subject: RE: Show Cause Meeting Times

---

That would be great. The sooner we can get this on the books, the better.

Honestly, we won't have that many questions for you, and most of the questions will be in response to the discussion. It's really an opportunity for you to respond to our inspection report and letter, and discuss the things Meridian is doing to address our concerns. Does that make sense?

Sara Schiff  
(404) 562-9870

**From:** [HughSmith@meridianms.org](mailto:HughSmith@meridianms.org) [<mailto:HughSmith@meridianms.org>]  
**Sent:** Wednesday, May 28, 2014 7:50 AM  
**To:** Schiff, Sara  
**Subject:** Re: Show Cause Meeting Times

Good morning, Sara. I trust that you had a great weekend as well. I am still trying to get responses back from the Mayor's office and from legal council. I will press to have an answer either today or tomorrow. I would also like to ask you about the show cause meeting. In order for us to be as prepared as possible, can you share with me the questions that will be asked? Any information or suggestions that you can provide will be greatly appreciated.

HS

Sent from my iPhone

On May 28, 2014, at 6:01 AM, "Schiff, Sara" <[Schiff.Sara@epa.gov](mailto:Schiff.Sara@epa.gov)> wrote:

Good morning, Hugh. I hope you had a great Memorial Day weekend. I was wondering if you had a chance to figure out some dates that would work for you for a show cause. We would like to get that scheduled.

Thanks!

Sara Schiff  
(404) 562-9870

**From:** [HughSmith@meridianms.org](mailto:HughSmith@meridianms.org) [<mailto:HughSmith@meridianms.org>]  
**Sent:** Wednesday, May 21, 2014 9:40 AM  
**To:** Schiff, Sara  
**Subject:** RE: Show Cause Meeting Times

Sara,

Although we would rather meet in person, because of scheduling we were planning on having a conference call. I will let you know, as soon as I can, what dates in June work for us.

HS

From: "Schiff, Sara" <[Schiff.Sara@epa.gov](mailto:Schiff.Sara@epa.gov)>  
To: "[HughSmith@meridianms.org](mailto:HughSmith@meridianms.org)" <[HughSmith@meridianms.org](mailto:HughSmith@meridianms.org)>  
Date: 05/20/2014 12:25 PM  
Subject: RE: Show Cause Meeting Times

---

Hugh-

My attorney is actually out until the 27<sup>th</sup>, and I'll be on leave the 29<sup>th</sup> and 30<sup>th</sup>. Do you have any dates the following week (June 2<sup>nd</sup> or 4<sup>th</sup> - 6<sup>th</sup>) that would work for you? If possible the Wednesday afternoon or Thursday late morning/late afternoon would be most convenient. Also, are you planning on coming into the office for the meeting or having a teleconference?

Thanks,

Sara Schiff  
(404) 562-9870

**From:** [HughSmith@meridianms.org](mailto:HughSmith@meridianms.org) [<mailto:HughSmith@meridianms.org>]  
**Sent:** Tuesday, May 20, 2014 1:18 PM  
**To:** Schiff, Sara  
**Subject:** Re: Show Cause Meeting Times

Sara,

My week has been very active thus far. . . thanks for asking! The following are the potential dates that we suggest.

5/28: 8am-12  
5/29: 8am-12  
5/30: 12pm-5

HS

From: "Schiff, Sara" <[Schiff.Sara@epa.gov](mailto:Schiff.Sara@epa.gov)>  
To: "[hughsmith@meridianms.org](mailto:hughsmith@meridianms.org)" <[hughsmith@meridianms.org](mailto:hughsmith@meridianms.org)>  
Date: 05/20/2014 11:31 AM  
Subject: Show Cause Meeting Times

---

Hugh-

Hope your week is off to a great start. I was wondering if you had a chance to pick some potential dates for the show cause meeting.

Thanks,

Sara Schiff  
Environmental Engineer  
Clean Water Enforcement Branch  
US EPA - Region 4  
61 Forsyth Street, SW  
Atlanta, GA 30303  
P: (404) 562-9870  
F: (404) 562-9729

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## Armstrong, Kathy

---

**From:** HughSmith@meridianms.org  
**Sent:** Thursday, July 31, 2014 5:30 PM  
**To:** Janovitz, Sara; Horton, Matthew  
**Subject:** RE: Supplemental SSO list and Cover Letter  
**Attachments:** DOC073114EPA SSO 2.pdf; Supplemental SSO List - City of Meridian.xlsx

**Follow Up Flag:** Follow up  
**Flag Status:** Completed

**Categories:** Record Saved - Shared

See attached cover letter and supplemental information

Thank You,

HS

**From:** "Schiff, Sara"  
**To:** "HughSmith@meridianms.org"  
**Cc:** "michael@gogganslaw.com" , "Floyd, Tanya" , "Sayre, Dennis"  
**Date:** 07/29/2014 01:18 PM  
**Subject:** RE: EPA Cover letter Document

---

Hugh-

Thanks for sending the cover letter—it answered some initial questions I had after reviewing the attachments emailed to me last week. The City's response states that there are inconsistencies in the SSO data and that the City will submit a revised SSO list by July 31, 2014. Will this list be finished and emailed to me by this Thursday? Just as a reminder, a complete response to the Information Request was due on July 18, 2014, and anything not completely answered by July 18m 20104, could be a violation of Section 308 of the Clean Water Act.

Please let me know if you have any questions.

Sara Schiff  
(404) 562-9870

**From:** HughSmith@meridianms.org [mailto:HughSmith@meridianms.org]  
**Sent:** Tuesday, July 29, 2014 12:57 PM  
**To:** Schiff, Sara  
**Subject:** Fw: EPA Cover letter Document

----- Forwarded by Hugh Smith/COM on 07/29/2014 11:56 AM -----

From: Barbara Kidd/COM  
To: Hugh [Smith/COM@MeridianMS.org](mailto:Smith/COM@MeridianMS.org)  
Date: 07/18/2014 05:05 PM  
Subject: Safe Water Document

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The pages were scanned in back to front therefore, page 1 is actually page six.  
My best,  
BarbaraK



**City of Meridian, Mississippi**  
List of SSOs from September 2008 to May 6, 2014

Date SSO Event Report Received by MDEQ	SSO Reporting		City Notified of SSO Event		SSO Ceased		Location of SSO		Ultimate Destination of SSO	Volume of SSO, (gal) (approx.)	Cause of SSO	Corrective Actions to Stop SSO	Corrective Action to Prevent Future SSOs	Miscellaneous Information
	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
1/12/2009			NOT AVAILABLE	12/29/2008	NOT AVAILABLE	1/12/2009	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	15,000,000	DUE TO CONTINUOUS RAINY DAYS, PLANT REACHED MAXIMUM TREATMENT CAPACITY SO EXCESS WAS DIVERTED TO EQ BASINS	ONCE THE INCLEMENT WEATHER SUBSIDED, INFLUENT FLOW DECREASED AND PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	RECORDED FROM NPDES EXCEEDANCE LETTER TO MDEQ
3/20/2009	✓		6AM	3/16/2009	4PM	3/16/2009	HAMILTON AVENUE	MANHOLE	SOWASHEE CREEK	6,500	POWER OUTAGE AT WASTEWATER TREATMENT PLANT & RAINFALL OF 2 INCHES	MS POWER HAD ELECTRICAL COMPONENTS SHIPPED OVERNIGHT TO CORRECT PROBLEM	PARTS INSTALLED BY MS POWER	
3/23/2009	✓		3PM	3/18/2009	6PM	3/20/2009	WEST OF 29TH AVENUE & NORTH OF ST. PAUL STREET, IN THE WOODS	HOLE IN PIPE	SOWASHEE CREEK	12,000	HOLE IN PIPE, COLLAPSED PIPE	DEBRIS REMOVED FROM PIPE WITH FLUSH TRUCK, CHLORINE TABLETS ADDED TO OVERFLOW	COLLAPSED PIPE REPAIRED	
5/4/2009	✓		NOT AVAILABLE	3/16/2009	NOT AVAILABLE	4/7/2009	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	160,000	I&I, FAILURE OF PIPE DOWN STREET THAT BLOCKED & RESTRICTED FLOW - 4.5 INCHES OF RAINFALL	MISCELLANEOUS LINE REPAIRS ON 24" PIPE. CREW CLEANED UP DEBRIS AND LIME WAS SPREAD OVER ENTIRE AREA	PLAN TO UPGRADE 24" LINE TO 36" LINE TO PREVENT FUTURE SSOs.	CITY OF MERIDIAN BYPASS REPORT INCLUDED SUPPLEMENTAL REPORT OF EVENT
INFO NOT AVAILABLE	✓		10:30AM	5/15/2009	2PM	5/15/2009	HAMILTON AVENUE	MANHOLE	SOWASHEE CREEK	85,000	EXCESSIVE RAINFALL - 3.5 INCHES TO 4 INCHES	DEBRIS REMOVED AND DISINFECTED AREA	NO INFORMATION PROVIDED	
1/14/2010	✓		10:30AM	12/18/2009	2PM	12/21/2009	HAMILTON AVENUE	MANHOLE	SOWASHEE CREEK	170,000	EXCESSIVE RAINFALL - 3.5 INCHES TO 4 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
1/8/2010			NOT AVAILABLE	12/17/2009	NOT AVAILABLE	1/8/2010	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	19,430,000	DUE TO CONTINUOUS RAINY DAYS AND PORTION OF MAIN PLANT BEING OFFLINE, PLANT WAS FORCED TO DIVERTED PORTION OF NORMAL FLOW TO EQ BASINS	ONCE PORTION OF MAIN PLANT WAS BROUGHT BACK ONLINE, PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	RECORDED FROM NPDES EXCEEDANCE LETTER TO MDEQ
1/19/2010	✓		12PM	1/13/2010	10AM	1/14/2010	FRED CLAYTON ROAD	PRESSURE LINE	LOST HORSE CREEK	290,000	BROKEN LINE	REPAIRED LINE	REPAIRED LINE	
1/24/2010	✓		NOT AVAILABLE	2/21/2010	NOT AVAILABLE	2/24/2010	4001 NEWELL ROAD	MANHOLE	SOWASHEE CREEK	170,000	GREASE AND ROOTS IN MANHOLE, 3+ INCHES OF RAIN AND 4 INCHES OF SNOW	FLUSHED LINE	CLEANED ROOTS FROM MANHOLE AND REPAIRED PIPE	
2/22/2010			NOT AVAILABLE	FEB. 2010	NOT AVAILABLE	2/22/2010	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	21,000,000	PART OF MAIN PLANT OFFLINE DUE TO PUMP REPAIRS, RESULTING IN DIVERSION TO EQ BASINS	ONCE PORTION OF MAIN PLANT BROUGHT BACK ONLINE FOLLOWING INSTALLATION OF NEW MOTOR ON PRIMARY SLUDGE PUMPS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	RECORDED FROM NPDES EXCEEDANCE LETTER TO MDEQ
3/15/2010	✓		MIDNIGHT	3/10/2010	NOT AVAILABLE	NOT AVAILABLE	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	75,000	EXCESSIVE RAINFALL - 2+ INCHES	CITY CREWS WORKING ON PROBLEM AT CHIP MILL	PLANS ARE BEING PUT IN PLACE TO INCREASE CAPACITY IN LINE	
3/23/2010	✓		MIDNIGHT	3/10/2010	9:45AM	3/16/2010	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	95,000	EXCESSIVE RAINFALL - 2+ INCHES	CITY CREWS WORKING ON PROBLEM AT CHIP MILL	PLANS ARE BEING PUT IN PLACE TO INCREASE CAPACITY IN LINE	
3/15/2010	✓		2:33PM	3/12/2010	7PM	3/15/2010	HWY 45 & HWY 39	RAISED MANHOLE	SOWASHEE CREEK	200,000	HIGH RAINFALL & MANHOLE INFILTRATION	REPAIR MANHOLE	CITY CREWS WORKING ON CHIPMILL PROBLEM	

Data SSO Event Report Received by MDEQ	SSO Reporting		City Notified of SSO Event		SSO Cased		Location of SSO		Ultimate Destination of SSO	Volume of SSO, (gal) (approx.)	Cause of SSO	Corrective Actions to Stop SSO	Corrective Action to Prevent Future SSOs	Miscellaneous Information
	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
3/24/2010			11AM	3/24/2010	2PM	3/24/2010	SOWASHEE STREET (BEHIND MISSISSIPPI MUSIC)	MANHOLE	TRIBUTARY OF SOWASHEE CREEK	NO INFORMATION AVAILABLE	NO INFORMATION AVAILABLE	CITY CREWS COLLECTED DEBRIS, EXCAVATED AFFECTED SOIL, AND LIMED IMPACTED AREA	NO INFORMATION PROVIDED	INFORMATION RECORDED FROM MARCH 25, 2010 MEMORANDUM FROM MDEQ
MAR. 2010			NOT AVAILABLE	MAR. 2010	NOT AVAILABLE	MAR. 2010	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	51,050,000	DUE TO CONTINUOUS RAINY DAYS AND PORTION OF MAIN PLANT BEING OFFLINE, PLANT WAS FORCED TO DIVERTED PORTION OF FLOW TO EQ BASINS	ONCE PORTION OF MAIN PLANT WAS BROUGHT BACK ONLINE, PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	
11/24/2010	✓	✓	7AM	11/24/2010	10:30AM	11/24/2010	26TH STREET/2606 EDGEWOOD DRIVE	MANHOLE	SOWASHEE CREEK	80,000	ROOTS IN MANHOLE	FLUSH TRUCK 'SHOT LINE' & OPEN IT	CREW CUT ROOTS OUT OF MANHOLE	FULL REPORT INCLUDES PICTURES
1/13/2011	✓		3AM	1/7/2011	8AM	1/7/2011	3900 OLD HWY 45 N.	MANHOLE	UNSPECIFIED	40,000	POWER FAILURE AT PLANT	RESET MAIN POWER BREAKER	NEW GROUND TO BLOWER MOTOR	
2/10/2011	✓	✓	NOT AVAILABLE	1/31/2011	NOT AVAILABLE	2/10/2011	HILLCREST DRIVE/BROADHEAD PROPERTY	MANHOLE	UNSPECIFIED	25,000	TREE ROOTS	SPREAD LIME OVER AREA	PLANS TO REPLACE MANHOLE & REMOVE TREE THIS WEEK - WEATHER PERMITTING	FULL REPORT INCLUDES PICTURES
2/15/2011	✓		1PM	2/11/2011	9AM	2/14/2011	HYUNDAI HWY 39	MANHOLE	SOWASHEE CREEK	4,000	GREASE IN MANHOLE	FLUSHED LINES	RED HOT COMPOUND USED TO CLEAN LINE	
2/17/2011	✓		10:30AM	2/17/2011	11:30AM	2/17/2011	SHUMATE ROAD	MANHOLE	UNSPECIFIED	300	GREASE BLOCKAGE	FLUSHED LINES, RED HOT COMPOUND USED TO CLEAN LINE	LOCATION ADDED TO A BI-WEEKLY FLUSHING SCHEDULE	
3/10/2011	✓	✓	10PM ON SSO, 2AM CITY	3/8/2011	2AM	3/9/2011	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	8,400	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/10/2011	✓	✓	8PM	3/8/2011	6PM	3/10/2011	HWY 11/80 & RUSSELL DRIVE ON 8 INCH LINE THAT CONNECTS TO A 24 INCH LINE, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	229,950	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/10/2011	✓	✓	8PM	3/8/2011	6PM	3/10/2011	HWY 11/80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	65,000	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/24/2011			NOT AVAILABLE	3/11/2011	NOT AVAILABLE	3/11/2011	SOUTH WWTP	EQ BASINS	SOWASHEE CREEK	9,800,000	PLANT WAS FORCED TO DIVERTED PORTION OF FLOW TO EQ BASINS	ONCE INFLUENT FLOW DECREASED, PLANT CEASED BYPASSING TO EQ BASINS	PLAN TO REPLACE FLEXIBLE CURTAIN IN BASIN AND DREDGING OF SOLIDS FROM WITHIN BASIN TO INCREASE CAPACITY	
4/6/2011	✓		4AM	4/4/2011	7:30AM	4/4/2011	3900 OLD HWY 45 S.	INFLUENT LIFT STATION	UNSPECIFIED	25,000	POWER FAILURE	RESET MAIN POWER BREAKER	ADJUSTED ELECTRICAL PANEL AND GROUND FAULT SENSORS	
4/29/2011	✓	✓	5PM	4/28/2011	8PM	4/28/2011	HWY 11/80 AT STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	225	1&I, 3 INCHES OF RAIN, AS WELL AS PREVIOUS RAIN IN PAST 2 WEEKS	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
7/14/2011	✓	✓	2PM	6/16/2011	2PM	7/6/2011	15TH PLACE	MANHOLE	SOWASHEE CREEK	250,000	COMBINATION OF ROOTS & GREASE, A COLLAPSED LINE	JETTED & BROKE THE BLOCKAGE, REPLACED DAMAGED LINE	REPLACED LINE	NOTIFIED OF BAD SEWER ODOR ON JULY 5, 2011
7/26/2011	✓		2PM	7/25/2011	5PM	7/25/2011	HWY 11/80 CRACKER BARREL	MANHOLE	SOWASHEE CREEK	1,800	HIGH RAINFALL OF 1.5 INCHES	CLEANED DEBRIS AND SANITIZED	NO INFORMATION PROVIDED	
7/26/2011	✓		2PM	7/25/2011	5PM	7/25/2011	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	2,700	HIGH RAINFALL OF 1.5 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
7/26/2011	✓	✓	3:30PM	7/25/2011	4:30PM	7/25/2011	56TH AVENUE @ ROYAL ROAD	MANHOLE	GALLAGHER CREEK	1,000	EXCESSIVE RAINFALL - 1 INCH	CLEANED DEBRIS (SMALL AMOUNTS OF PAPER & GREASE) & SPRAYED DISINFECTANT OVER ENTIRE AREA	NO INFORMATION PROVIDED	
11/18/2011	✓	✓	7AM	11/16/2011	1PM	11/16/2011	OLD 8TH STREET & 70TH PLACE	PUMP STATION	SOWASHEE CREEK	12,000	PUMP FAILURE	CLEANED DEBRIS & USED DISINFECTANT TO KILL BACTERIA IN THE AREA	PUMP REPAIRED	FULL REPORT INCLUDES PICTURES

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	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
11/21/2011	✓	✓	2:30PM	11/18/2011	10:30PM	11/18/2011	29TH AVENUE, SOUTH BANK, APPROXIMATELY 200 YARDS WEST OF 29TH AVENUE BRIDGE/RR	MANHOLE	SOWASHEE CREEK	48,000	CAVE-IN, STORMWATER DRAIN	DIRT REMOVED TO ALLOW SEWAGE TO FLOW, TRENCH BOX PUT INTO PLACE TO PROTECT THE LINE	LINE WILL BE REPLACED WITH A LARGER LINE	FULL REPORT INCLUDES PICTURES
12/2/2011		✓	10AM	11/30/2011	1AM	12/1/2011	29TH AVENUE @ RR	MAIN LINE	SOWASHEE CREEK	700,000	PUMP FAILURE & SEPARATION IN LINE	SWITCHED OUT PORTABLE PUMP, REPAIRED LINE, LIME WAS SPREAD OVER ENTIRE AREA	REPAIRED LINE AND SWITCHED OUT PUMP	FULL REPORT INCLUDES PICTURES
1/3/2012	✓	✓	10AM	12/29/2011	2:30PM	12/29/2011	11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	5,400	GREASE BLOCKAGE	GREASE REMOVED BY FLUSH TRUCK, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/27/2012	✓		10AM	1/26/2012	2PM	1/26/2012	5310 OVERBROOK LANE	MANHOLE	UNSPECIFIED	10 gpm	GREASE BLOCKAGE & INFLOW	JETTED LINE TO BREAK BLOCKAGE & RESUME NORMAL FLOW, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	JETTED LINE TO BREAK BLOCKAGE & RESUME NORMAL FLOW	
1/27/2012	✓		10AM	1/26/2012	5PM	1/26/2012	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	20 gpm	INFLOW - 3 INCHES OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/27/2012	✓		10AM	1/26/2012	6PM	1/26/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	20 gpm	INFLOW - 3 INCHES OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/27/2012	✓		9AM	1/26/2012	2PM	1/26/2012	26TH STREET & 40TH AVENUE	MAIN LINE	NO INFORMATION PROVIDED	4,500	INFLOW - 3 INCHES OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
2/3/2012	✓		8AM	1/27/2012	10AM	1/30/2012	3109 GRANDVIEW AVENUE	LINE	SOWASHEE CREEK	15gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
2/3/2012	✓		1PM	1/30/2012	2PM	1/31/2012	5525 CHEROKEE ROAD	MANHOLE	SOWASHEE CREEK	10 gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
2/3/2012	✓		11AM	2/2/2012	6PM	2/2/2012	600 FRONTAGE ROAD	LINE	SOWASHEE CREEK	60 gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
2/3/2012	✓		11AM	2/2/2012	5PM	2/2/2012	2900 SAINT PAUL STREET	LINE	SOWASHEE CREEK	60 gpm	BROKEN PIPE	REPLACED BROKEN PIPE, LIME WAS SPREAD OVER ENTIRE AREA	REPLACED BROKEN PIPE	
3/2/2012	✓		10AM	2/28/2012	6PM	2/28/2012	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	9,600	INFLOW - 1 INCH OF RAIN	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
3/2/2012	✓		10AM	2/28/2012	8:30AM	2/29/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	168,750	GREASE BLOCKAGE	GREASE REMOVED BY FLUSH TRUCK, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
3/26/2012			4PM	3/21/2012	7AM	3/24/2012	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	96,000	EXCESSIVE RAINFALL - 3.5 INCHES	WORK ON PROBLEM AT CHIP MILL	PLANS TO REPLACE OLD SEWER LINE, INCREASE NEW LINE	
3/26/2012			4PM	3/21/2012	7AM	3/24/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	65,000	EXCESSIVE RAINFALL - 3.5 INCHES	CLEANED UP	PLANS TO INCREASE LINE AT CHIP MILL	
3/26/2012			4PM	3/21/2012	7AM	3/24/2012	HWY 11/80 EAST & RUSSELL STREET, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	100,000	EXCESSIVE RAINFALL - 3.5 INCHES	NO INFORMATION PROVIDED	PLANS TO INCREASE LINE AT CHIP MILL	
4/2/2012	✓	✓	10:30AM	3/29/2012	11:15AM	3/29/2012	HWY 11/CELOTX	MANHOLE	SOWASHEE CREEK	600,000	PUMP STATION FAILURE	PUMP WAS RESET, LIME WAS SPREAD OVER THE ENTIRE AREA	PUMP WAS RESET	
6/25/2012		✓	7AM	6/25/2012	8:30AM	6/25/2012	HWY 39, NUMBER 1 LIFT STATION	PUMP STATION	SOWASHEE CREEK	50,000	POWER FAILURE	RESTORED POWER, COLLECTED ALL DEBRIS, SPREAD LIME OVER THE ENTIRE AREA	POWER RESTORED TO PUMP STATION	

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	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
8/1/2012	✓	✓	8PM	7/26/2012	8:30AM	7/27/2012	29TH AVENUE	MANHOLE	NONE	35,000	BROKEN LINE	REPAIRED LINE, DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	REPAIR OF LINE	
8/20/2012		✓	3:30PM	8/18/2012	6PM	NOT AVAILABLE	TOMMY WEBB DRIVE	MANHOLE	SOWASHEE CREEK	200,000	I&I, 2 INCHES OF RAINFALL	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
12/17/2012	✓		10AM	12/17/2012	8PM	12/17/2012	CHIP PICKERING DRIVE AND STENNIS DRIVE	PIPE	SOWASHEE CREEK	320,000	BROKEN PIPE	STOPPED PUMP TO CEASE FLOW, REPAIRED PIPE AND SPREAD LIME OVER ENTIRE AREA	REPAIRED PIPE LINE	
1/4/2013	✓	✓	3:30PM	12/28/2012	NOT AVAILABLE	12/29/2012	HWY 45 SOUTH, BEHIND MS POWER	MANHOLE	SOWASHEE CREEK	350,000	BLOCKAGE	FLUSHED LINE & CLEANED DEBRIS, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/4/2013	✓	✓	8PM	12/29/2012	11PM	12/29/2012	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	18,000	EXCESSIVE RAINFALL	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/4/2013	✓	✓	8PM	12/30/2012	11PM	12/30/2012	SOWASHEE STREET	MANHOLE	DITCH TO SOWASHEE CREEK	1,800	EXCESSIVE RAINFALL - 1.5 INCHES	DEBRIS COLLECTED & REMOVED, LIME WAS SPREAD OVER ENTIRE AREA	NO INFORMATION PROVIDED	
1/14/2013	✓	✓	7PM	1/12/2013	6AM	1/13/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	13,200	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
1/14/2013	✓	✓	6PM	1/12/2013	NOT AVAILABLE	1/14/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	72,000	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS	NO INFORMATION PROVIDED	ONGOING
1/14/2013	✓	✓	6PM	1/12/2013	6AM	1/13/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	10,800	EXCESSIVE RAINFALL - 2 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
1/28/2013	✓	✓	10AM	1/16/2013	10AM	1/19/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	51,000	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	10AM	1/16/2013	8AM	1/17/2013	HWY 11/80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	66,000	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	10AM	1/16/2013	8AM	1/21/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	142,000	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	10AM	1/16/2013	12NOON	1/23/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	151,200	EXCESSIVE RAINFALL - ABOUT 8 INCHES FOR THE MONTH, A COLLAPSED LINE	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	REPAIRED LINE	
1/28/2013	✓	✓	1PM	1/23/2013	7PM	1/23/2013	29TH AVENUE, MULTI-COUNTY	MANHOLE	SOWASHEE CREEK	1,500	BLOCKAGE IN SEWER LINE	COLLECTED DEBRIS, SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	HWY 45 NORTH, ENTRANCE TO EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	8,100	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS, SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	2,700	EXCESSIVE RAINFALL - ABOUT 2 INCHES	COLLECTED DEBRIS, SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	HWY 11/80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	10,800	EXCESSIVE RAINFALL - ABOUT 2 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
2/1/2013	✓	✓	11AM	1/30/2013	8PM	1/30/2013	HWY 11/80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	5,400	EXCESSIVE RAINFALL - ABOUT 2 INCHES	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
2/11/2013	✓	✓	5PM	2/6/2013	2PM	2/7/2013	CHIP PICKERING DRIVE	MAIN LINE	SOWASHEE CREEK	300,000	BREAK IN LINE	SPREAD LIME OVER AREA	REPAIRED LINE	
2/14/2013	✓		1PM	2/13/2013	10PM	2/13/2013	65TH AVENUE (MAPLE GAS TERMINAL)	MANHOLE	SOWASHEE CREEK	10,800	EXCESSIVE RAINFALL - 6.74 INCHES BETWEEN 2/10/13 TO 2/12/13	NO INFORMATION PROVIDED	NO INFORMATION PROVIDED	
2/14/2013	✓		9AM	2/12/2013	11PM	2/12/2013	40TH AVENUE & 26 STREET	MANHOLE	SOWASHEE CREEK	2,520	EXCESSIVE RAINFALL - 2.9 INCHES 2/11/2013 TO 2/12/2013	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		9AM	2/12/2013	11PM	2/12/2013	26 & 41ST STREET	MANHOLE	SOWASHEE CREEK	4,200	EXCESSIVE RAINFALL - 2.9 INCHES 2/11/2013 TO 2/12/2013	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	

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	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
2/14/2013	✓		8PM	2/10/2013	NOT AVAILABLE	2/13/2013	HWY 45 NORTH (EAST MERIDIAN WWTP ENTRANCE)	MANHOLE	SOWASHEE CREEK	42,000	EXCESSIVE RAINFALL - 6.74 INCHES BETWEEN 2/10/13 TO 2/12/13	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	6PM	2/13/2013	HWY 11 & 80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	70,800	EXCESSIVE RAINFALL - 6.74 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	6PM	2/13/2013	HWY 11 & 80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	84,000	EXCESSIVE RAINFALL - 6.74 INCHES BETWEEN 2/10/13 TO 2/12/13	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		6PM	2/11/2013	10PM	2/12/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	4,800	EXCESSIVE RAINFALL - 2.9 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		8PM	2/10/2013	10AM	2/11/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	4,200	EXCESSIVE RAINFALL - 3.48 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	IDENTIFY I&I SPOTS IN LINE AND MAKE SPOT REPAIRS, TWO BREAKS AND ONE MANHOLE HAVE BEEN IDENTIFIED, REPAIRS BEGAN 2/14/2013 ON THESE	
2/14/2013	✓		8PM	2/10/2013	10AM	2/11/2013	HWY 145 & SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	1,680	EXCESSIVE RAINFALL - 3.48 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/14/2013	✓		1PM	2/13/2013	2PM	2/13/2013	OLD 8TH STREET	MANHOLE	SOWASHEE CREEK	300	PUMP FAILURE DUE TO RAGS PREVENTING IMPALERS FROM TURNING	COLLECTED DEBRIS AND SPREAD LIME OVER AREA, PULLED PUMP TO BE REPAIRED	REPAIR OF PUMP	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	HWY 11/80, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	6,000	EXCESSIVE RAINFALL - 1.5 INCHES	SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	HWY 11/80 AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	3,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	PARKWAY BOULEVARD	MANHOLE	SOWASHEE CREEK	600	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	900	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	7PM	3/11/2013	65TH AVENUE	MANHOLE	DITCH TO SOWASHEE CREEK	3,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/19/2013	✓	✓	2PM	3/11/2013	8PM	3/12/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	9,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/21/2013	✓	✓	6PM	2/17/2013	10AM	2/18/2013	100 TO 65TH AVENUE	MANHOLE	SOWASHEE CREEK	10,000	EXCESSIVE RAINFALL - 8 INCHES THE WEEK PRIOR, PIPE RESTRICTION DUE TO JOINT FAILURE ALLOWING DIRT INTO SEWER LINE	REPAIRED AND WASHED LINE, COLLECTED DEBRIS AND SPREAD LIME OVER AREA	LINE REPAIRED AND WASHED	
3/21/2013	✓	✓	10PM	3/18/2013	11AM	3/19/2013	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	177,000	BREAK IN LINE	SHUT OFF PUMP STATION	REPAIRED LINE	
3/21/2013	✓	✓	9AM	3/18/2013	6PM	3/19/2013	HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	3,800	INFLOW & PIPE RESTRICTION	JETTED LINE TO ALLOW MORE FLOW THROUGH LINE, COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/21/2013	✓	✓	X	3/19/2013	1PM	3/19/2013	34TH & 10TH AVENUE	LINE	SOWASHEE CREEK	60,000	BANK COLLAPSED SHIFTING THE LINE, WHICH CAUSED THE RUBBERS IN PIPE JOINTS TO PUSH OUT	REPAIRED LINE	REPAIRED LINE	
3/29/2013	✓	✓	3PM	3/24/2013	4:30PM	3/24/2013	4524 HWY 39 NORTH	MANHOLE	SOWASHEE CREEK	180	GREASE BLOCKAGE	JETTED LINE, COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
3/29/2013	✓	✓	11:30AM	3/24/2013	2PM	3/27/2013	HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	8,940	I&I, PIPE RESTRICTION	COLLECTED DEBRIS	NO INFORMATION PROVIDED	
5/1/2013	✓	✓	7AM	5/1/2013	X	X	EAST MERIDIAN WWTP, HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	55,000	EXCESSIVE RAINFALL - 1.5 INCHES	REMOVE DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
5/13/2013	✓	✓	7:30AM	5/10/2013	12PM	5/11/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	60,000	EXCESSIVE RAINFALL - 2 INCHES	REMOVE DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	

Date SSO Event Report Received by MDEQ	SSO Reporting		City Notified of SSO Event		SSO Cased		Location of SSO		Ultimate Destination of SSO	Volume of SSO, (gal) (approx.)	Cause of SSO	Corrective Actions to Stop SSO	Corrective Action to Prevent Future SSOs	Miscellaneous Information
	City of Meridian Excel Matrix	MDEQ Excel Matrix	Time	Date	Time	Date	Location	Source						
5/13/2013		✓	7:30AM	5/10/2013	12PM	5/11/2013	EAST MERIDIAN WWTP, HWY 45 NORTH, EAST MERIDIAN WWTP ACCESS ROAD	MANHOLE	SOWASHEE CREEK	75,000	EXCESSIVE RAIN - 2 INCHES	LIME AREA	NO INFORMATION PROVIDED	
6/18/2013			9AM	3/25/2013	10AM	3/25/2013	27TH STREET AND 45TH AVENUE	PUMP STATION	SOWASHEE CREEK	4,500	PUMP FAILURE	STATION BROUGHT BACK ONLINE BY CITY PERSONNEL	REPLACED CONTROLLER PANEL AT STATION	
6/18/2013			9AM	6/17/2013	11AM	6/17/2013	CHIP PICKERING DRIVE	LINE	SOWASHEE CREEK	147,000	BLOWOUT IN PRESSURE LINE	REPAIRED LINE	REPAIR OF LINE	
7/10/2013	✓		9:30AM	5/13/2013	1:30AM	5/17/2013	29TH AVENUE & SOWASHEE CREEK	24" SEWER LINE	SOWASHEE CREEK	120,000	BLOCKAGE IN LINE	REPAIR SEWER LINE, FLUSHED LINE AND CLEANED UP DEBRIS, LIME PUT DOWN OVER AREA	AT THIS TIME, CITY LOOKING TO REPLACE ABOUT 200' OF 24" SEWER LINE	SSO REPORT TO DEQ INCLUDED ATTACHMENT
8/15/2013	✓	✓	12AM	8/13/2013	10:30AM	8/14/2013	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	10,500	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
8/15/2013	✓	✓	12AM	8/13/2013	9AM	8/14/2013	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	13,200	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
10/7/2013	✓		10PM	10/3/2013	9AM	10/4/2013	COTTON GIN ROAD	PUMP STATION	DITCH TO SOWASHEE CREEK	10,000	PUMP FAILURE	COLLECTED DEBRIS AND DISINFECTED AREA	REPAIRED PUMP	
11/13/2013	✓		11PM	11/4/2013	1PM	11/5/2013	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	262,000	BREAK IN SEWER LINE	SPOT REPAIR OF LINE, COLLECTED DEBRIS AND DISINFECTED AREA	LINE REPAIRED	
11/13/2013	✓		X	11/9/2013	2:45PM	11/12/2013	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	968,000	BREAK IN LINE	SPOT REPAIR OF LINE, COLLECTED DEBRIS AND DISINFECTED AREA	LINE REPAIRED	
1/13/2014	✓		9AM	1/9/2014	2:15PM	1/9/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	132,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
1/21/2014	✓		8AM	1/17/2014	12NOON	1/17/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	127,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
1/28/2014	✓		2AM	1/27/2014	2PM	1/27/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	145,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
2/4/2014	✓		8AM	1/30/2014	2PM	1/30/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	130,000	BLOWOUT IN PRESSURE LINE	SPOT REPAIR ON LINE	LINE REPAIRED	
2/5/2014	✓		10PM	2/5/2014	12:30PM	2/5/2014	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	30-35 GALS	EXCESSIVE RAIN - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/5/2014	✓		10PM	2/4/2014	12:30PM	2/5/2014	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	40-50 GPM	EXCESSIVE RAIN - 1.5 INCHES	COLLECTED DEBRIS AND SPREAD LIME OVER AREA	NO INFORMATION PROVIDED	
2/13/2014	✓		7AM	2/10/2014	2PM	2/10/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	140,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
2/18/2014	✓		2:30PM	2/15/2014	8PM	2/15/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	125,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
3/4/2014	✓		5AM	2/21/2014	3PM	2/21/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	147,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
3/14/2014	✓		7AM	3/10/2014	1:30PM	3/10/2014	CHIP PICKERING DRIVE	PRESSURE LINE	SOWASHEE CREEK	138,000	BREAK IN LINE	SPOT REPAIR	LINE REPAIRED	
3/28/2014	✓		12AM	3/28/2014	ONGOING	ONGOING	SOWASHEE STREET	MANHOLE	SOWASHEE CREEK	30-35 GPM	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/28/2014	✓		12AM	3/28/2014	ONGOING	ONGOING	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	60,000	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
3/28/2014	✓		12AM	2/28/2014	ONGOING	ONGOING	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	45 GPM	EXCESSIVE RAINFALL - 1.5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/8/2014	✓		8PM	4/4/2014	10PM	4/8/2014	HWY 11/80 EAST, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	200 GPM	EXCESSIVE RAINFALL - 6 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/8/2014	✓		5PM	4/13/2014	3PM	4/15/2014	HWY 11/80 EAST, BEHIND STRIBLING EQUIPMENT	MANHOLE	SOWASHEE CREEK	408,000	EXCESSIVE RAINFALL - 5 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		6PM	4/13/2014	2PM	4/16/2014	HWY 45 NORTH, EAST MERIDIAN WWTP	MANHOLE	SOWASHEE CREEK	365,000	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		8PM	4/4/2014	7PM	4/9/2014	HWY 45 NORTH, EAST WWTP ENTRANCE	MANHOLE	SOWASHEE CREEK	535,000	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		3PM	4/13/2014	2PM	4/15/2014	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	211,500	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	
4/22/2014	✓		8PM	4/4/2014	6PM	4/7/2014	HWY 11/80 EAST AT CRACKER BARREL	MANHOLE	SOWASHEE CREEK	315,000	EXCESSIVE RAINFALL - 4 INCHES	COLLECTED DEBRIS AND DISINFECTED AREA	NO INFORMATION PROVIDED	

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**Armstrong, Kathy**

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**From:** Janovitz, Sara  
**Sent:** Tuesday, June 28, 2016 9:45 AM  
**To:** Baschon, Carol; Glaze, Rich; Sayre, Dennis  
**Subject:** Sign In Sheet  
**Attachments:** Sign In Sheet 6.27.2016.pdf

Attached is the sign in sheet from yesterday.

Thanks,

**Sara Schiff Janovitz**

Environmental Engineer  
NPDES Permitting and Enforcement Branch  
US EPA - Region 4  
61 Forsyth Street, SW  
Atlanta, GA 30303  
P: (404) 562-9870  
F: (404) 562-9729

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**Meridian Meeting**  
**June 27, 2016**

[illegible]

## Armstrong, Kathy

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**From:** Sayre, Dennis  
**Sent:** Thursday, July 16, 2015 12:55 PM  
**To:** hughsmith@meridianms.org  
**Cc:** Janovitz, Sara; Baschon, Carol; Glaze, Rich; Bush, William  
**Subject:** South Plant inspection report and reference info  
**Attachments:** Meridian,MS CS I # 15-0233 Final.pdf

Hugh,

Thanks for the hospitality in Meridian. Here's the inspection report for the South Plant. The SESD inspector told me earlier this week that he would try to finish the East Plant report by the end of the month. I'll send it to you shortly thereafter. Also, MDEQ stated that they were not familiar with the reference used in the CD titled *Guidance for the Design of Publicly Owned Wastewater Facilities*. I guess it's not something that the DEQ compliance folks utilize, but it's on their revolving funds website:

[https://www.deq.state.ms.us/mdeq.nsf/page/SRF\\_Water\\_PC\\_RLP?OpenDocument#\\_Section1](https://www.deq.state.ms.us/mdeq.nsf/page/SRF_Water_PC_RLP?OpenDocument#_Section1)

Sincerely,  
Dennis

Dennis J. Sayre | Environmental Engineer | Inspector  
NPDES Permitting and Enforcement Branch | Municipal & Industrial Enforcement Section  
U.S. EPA Region 4 | 61 Forsyth St., SW | Atlanta, Georgia 30303  
(404) 562-9756

"The great tragedy of Science — the slaying of a beautiful hypothesis by an ugly fact." T.H. Huxley

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# MERIDIAN

CITY OF MERIDIAN

A better longitude on life.

July 31, 2014

**Mayor:**

PERCY BLAND, III  
(601) 485-1927  
FAX: (601) 485-1911

**Council Members:**

GEORGE M THOMAS  
Ward 1

K. DUSTIN MARKHAM  
Ward 2

BARBARA HENSON  
Ward 3

KIM HOUSTON  
Ward 4

RANDY HAMMON  
Ward 5

COUNCIL CLERK  
(601) 485-1959  
FAX: (601) 485-1913

**CITY DEPARTMENTS:**

Chief Administrative Officer  
(601) 485-1929  
FAX: (601) 485-1911

Community Development:  
(601) 485-1910  
FAX: (601) 484-6813

Finance and Records:  
(601) 485-1946  
FAX: (601) 485-1979

Fire:  
(601) 485-1822  
FAX: (601) 485-1035

Homeland Security:  
(601) 484-6890  
FAX: (601) 484-6895

Parks and Recreation:  
(601) 485-1802  
FAX: (601) 485-1851

Police:  
(601) 485-1841  
FAX: (601) 484-6832

Public Works:  
(601) 485-1920  
FAX: (601) 485-1864

Sara Schiff  
Environmental Engineer  
Clean Water Enforcement Branch  
US EPA – Region 4  
61 Forsyth Street, SW  
Atlanta, GA 30303

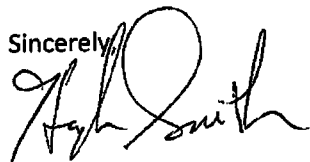
Dear Ms. Schiff:

While attempting to compile a comprehensive listing of SSO's, which was included in our response letter dated July 18, 2014, discrepancies were identified among the City's list of SSO's, the Mississippi Department of Environmental Quality's (MDEQ) list of SSO's, and the SSO Reporting Forms provided to MDEQ. The City of Meridian is committed to providing your agency with the most accurate data possible from the three sources of information referenced.

Therefore, subsequent to the submittal of our July 18<sup>th</sup> response letter, we continued an exhaustive effort to collect and compile all available SSO data in order to generate a true comprehensive finalized listing of SSO events. As indicated in our July 18<sup>th</sup> response letter, please accept the attached spreadsheet as the complete and final list of SSO occurrences from September, 2008 through May 6, 2014.

We look forward to the opportunity to convene face to face and discuss the most appropriate approach for improving our city's wastewater system.

Sincerely,



Hugh Smith  
Public Works Director

HS/ph

Attachment

601 23rd Avenue  
Post Office Box 1430  
Meridian, MS 39302-1430  
[www.meridianms.org](http://www.meridianms.org)

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**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 4**

Science and Ecosystem Support Division  
Field Services Branch  
980 College Station Road  
Athens, Georgia 30605-2720

June 11, 2015

**4SESD-FSB**

**MEMORANDUM**

**SUBJECT:** Meridian POTW Compliance Sampling Inspection  
311 27<sup>th</sup> Avenue  
Meridian, MS  
SESD Project # 15-0233

**FROM:** Bill Simpson *WES 6-11-15*  
Enforcement Section

**THRU:** Mike Bowden, Chief *[Signature] 6-11-15*  
Enforcement Section

**TO:** Maurice Horsey, Chief  
Municipal and Industrial Enforcement Section  
Water Protection Division

Attached is a copy of the report for the *Compliance Sampling Inspection of Meridian POTW* that was conducted in Meridian, MS on March 16-19, 2015. The final report has not been distributed. If you have any questions, please contact me at (706) 355-8748, or email me at [simpson.bill@epa.gov](mailto:simpson.bill@epa.gov)

United States Environmental Protection Agency  
Region 4

Science and Ecosystem Support Division  
980 College Station Road  
Athens, Georgia 30605-2720



---

**Compliance Sampling Investigation**  
**City of Meridian Publicly Owned Treatment Works**  
**Meridian, Mississippi**  
**Inspection Date: March 17-18, 2015**  
**NPDES Permit No. MS0020117**  
**SESD Project ID No. 15-0233**

---


**Requestor: Maurice Horsey, Chief**  
Municipal and Industrial Enforcement Section  
Water Protection Division  
USEPA Region4, 61 Forsyth St. SW  
Atlanta, Georgia 30303-8960

**SESD Project Leader: Bill Simpson**  
Environmental Scientist, Enforcement Section  
Field Services Branch  
980 College Station Road  
Athens, Georgia 30605-2720

**Title and Approval Sheet**


Title: Compliance Sampling Inspection  
City of Meridian POTW

**Approving Official:**

  
Mike Bowden, Chief  
Enforcement Section  
Field Services Branch

6/11/15  
Date

**SESD Project Leader:**

  
Bill Simpson, Environmental Scientist  
Enforcement Section  
Field Services Branch

6-11-15  
Date

**Compliance Sampling Inspection  
City of Meridian POTW  
Meridian, MS**

**INTRODUCTION**

On March 17-18, 2015, representatives of the U.S. Environmental Protection Agency, Science and Ecosystem Support Division (USEPA – SEDS), conducted a Compliance Sampling Inspection (CSI) at the City of Meridian Publicly Owned Treatment Works (POTW) in Meridian, MS. The CSI was performed at the request of the NPDES Permitting and Enforcement Branch, USEPA Region 4, as a follow-up inspection after the Compliance Evaluation Inspection conducted on April 8-9, 2014 by the Water Protection Division. Recommendations in this report address the current plant as configured.

The following personnel participated in the compliance sampling inspection:

<u>Name</u>	<u>Organization</u>	<u>Telephone</u>
Bill Simpson	USEPA–SESD, Inspector	(706) 355-8748
Jairo Castillo	USEPA–SESD, Inspector	(706) 355-8621
Derek Little	USEPA–SESD, Env. Engineer	(706) 355-8717
Jim Harvey	MSDEQ Inspector	(601) 961-5591
Terry Cook JR.	Meridian POTW, Chief Operator	(601) 616-3328
Hugh Smith	Meridian, MS Director of Utilities	(601)484-6836

**BACKGROUND**

The City of Meridian, MS is located in Lauderdale County Mississippi. The Meridian South Wastewater Treatment plant (South Plant) is authorized to discharge under Mississippi Department of Environmental Quality (MSDEQ) NPDES Permit number MS002117. The South Plant is comprised of two activated sludge plants referred to as the “old” and the “new” plant that combine to handle the City of Meridian’s wastewater flow. The “old plant” was constructed in 1959, and is a conventional activated sludge facility that handles approximately 4 million gallons per day (MGD) flow. The “new plant” is a 1985 two- stage aeration activated sludge plant that handles approximately 9 MGD of the city’s flow (See figure 1 page 6). Both of these two plants, the “old” and the “new”, have primary and secondary clarifiers. Both processes combine for a total flow of approximately 13 MGD of treated sewage that is discharged to the Sowashee Creek. The plant has adequate overflow capacity with an additional lagoon for rain event storage. The City of Meridian has asked the MSDEQ to terminate the Meridian East Plant (East Plant) NPDES Permit Number MS0055735 in a letter dated February 6, 2014. See appendix C for copies of correspondence between Meridian and MSDEQ. The East Plant can only discharge to the Mississippi Power Company (MPC Kemper Facility) or gravity flow back to the South Plant to discharge treated sewage into Sowashee Creek under the combined outfall 002. The city is currently transitioning to a 100% re-use system by supplying 100% of the flow from the combined South Plant and East Plant flow to be used as cooling water for the Mississippi Power Company (MPC Kemper). The main pumping station for MPC Kemper was completed and located adjacent to the Meridian South Plant. See appendix A for photographs of the South Plant. Please refer to the SEDS project number 15-0234 for the Compliance Evaluation Inspection Report that was conducted for the Meridian East Plant.

This report (project number 15-0233) only addresses the concerns of the Meridian South Plant.

## **SUMMARY**

During SESD's investigation, both the influent and effluent streams were sampled with 24 hour time composite samplers and grab samples. The samples were analyzed for total metals, biochemical oxygen demand, 5 day carbonaceous (CBOD<sub>5</sub>), total suspended solids, nutrient series (total Kjeldahl nitrogen, ammonia, nitrate/nitrite, and phosphorous), and cyanide. Grab samples were also obtained from the old and new plant aeration basins. Water quality parameters were sampled in-situ. Flow measurement at the facility is conducted by a combination of Parshall flumes (primary) and Siemens Ultrasonic systems (secondary) for the influent and effluent flow measurement systems.

Using information from Discharge Monitoring Reports and design blueprints provided by the Chief Operator and the Director of Utilities for the City of Meridian, and the results of the SESD sampling study, the major processes were assessed. Table 1 (page 9) includes sample identification and location descriptions.

The strength of the influent wastewater for CBOD<sub>5</sub>, ammonia, nitrate-nitrite, total phosphorus, and Total Kjeldahl Nitrogen (TKN) was low-range for a typical wastewater influent concentrations (Table 2 page 9).

SESD's effluent data indicated that all parameters; CBOD<sub>5</sub>, TSS, Total Copper, Cyanide, pH and dissolved oxygen were within permit requirements. The percent removal calculations for CBOD<sub>5</sub> and TSS were within permit requirements (Table 3 page 10).

The process control data (Table 5, page 11) indicated that the food to microorganism (F/M) ratio for the old plant is under typical values. This could be due to the Inflow and Infiltration (I&I) issues associated with the old plant, and subsequent light BOD loading, or due to the lack of proper process return activated sludge (RAS)/ waste activated sludge (WAS) flow meters.

Flow measurement for the facility is discussed in Table 7, page 12.

## **Major Findings:**

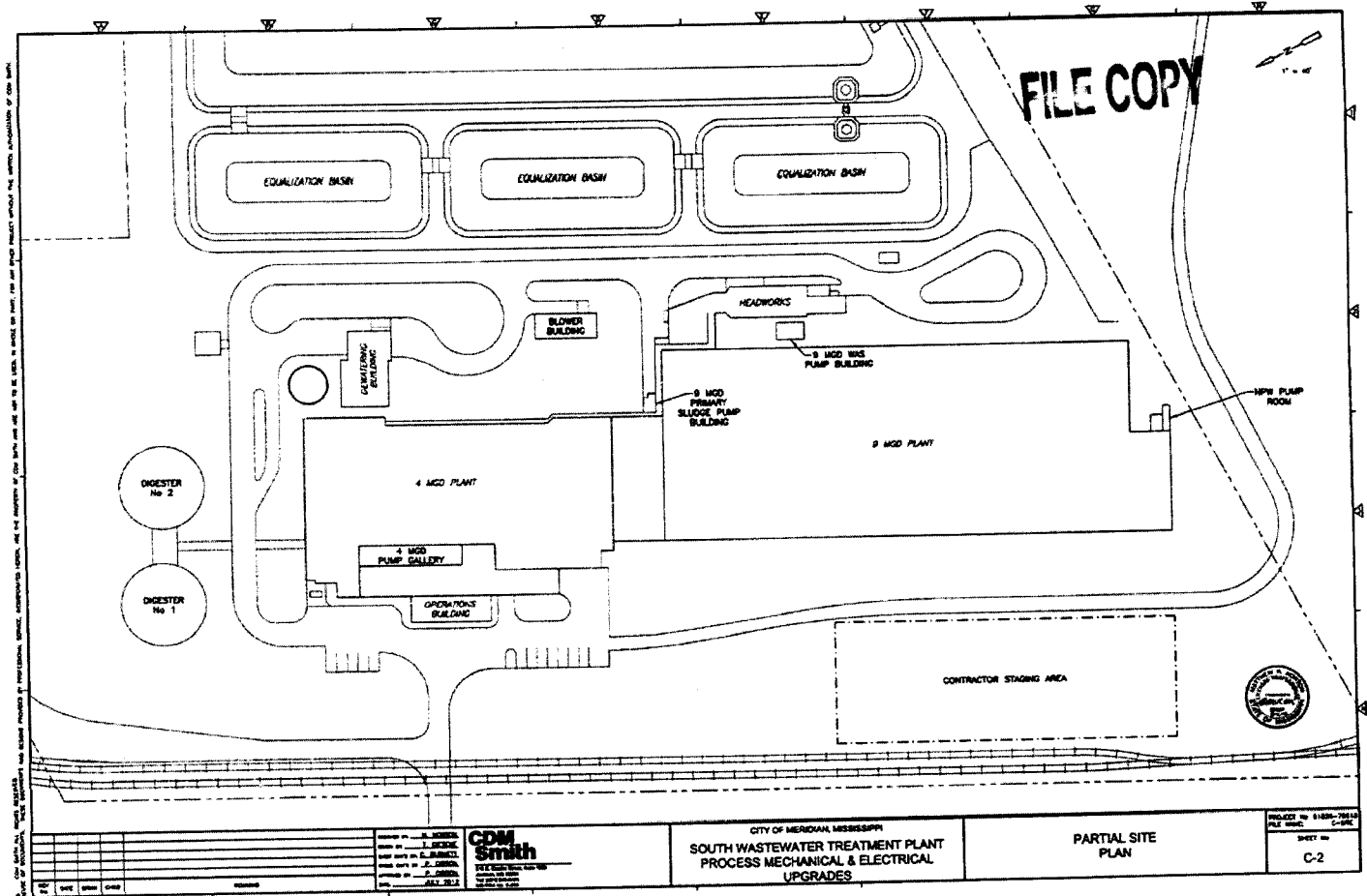
- Plant infrastructure is aging and failing. Internal corrosion on the return activated sludge (RAS) piping is deteriorating at a considerable rate. New pin hole leaks are starting as soon as repairs are completed. New piping upgrades need to occur soon. Both the old and the new plants require significant piping upgrades. The broken chain drive on the old plant clarifier needs to be repaired.
- The return activated sludge (RAS) / waste activated sludge (WAS) process flow decisions are based off the mixed liquor suspended solids (MLSS) numbers provided by the laboratory. The facility is operating the biological systems without adequate knowledge of the RAS/WAS flows. No process flow meters are used.
- Inflow and Infiltration (I&I) issues continue to be a concern for a plant of this age.

- The flow measurement systems for both the old and new plant were accurate. Primary and secondary devices for both the influent and effluent flow were within 6% of each other. This is within the USEPA recommended percentage of 10 percent.
- The Meridian onsite laboratory appeared in good order. The laboratory was using correct methods and producing measurement based data of documented quality. Reports were clear concise and orderly.
- Innovative solutions proposed by the Chief Operator and the Director of Utilities hold great promise for the future of the City of Meridian. The 100% water re-use agreement between the City of Meridian and the MPC Kemper is an innovative and hopefully financially rewarding solution to the necessary plant upgrades.

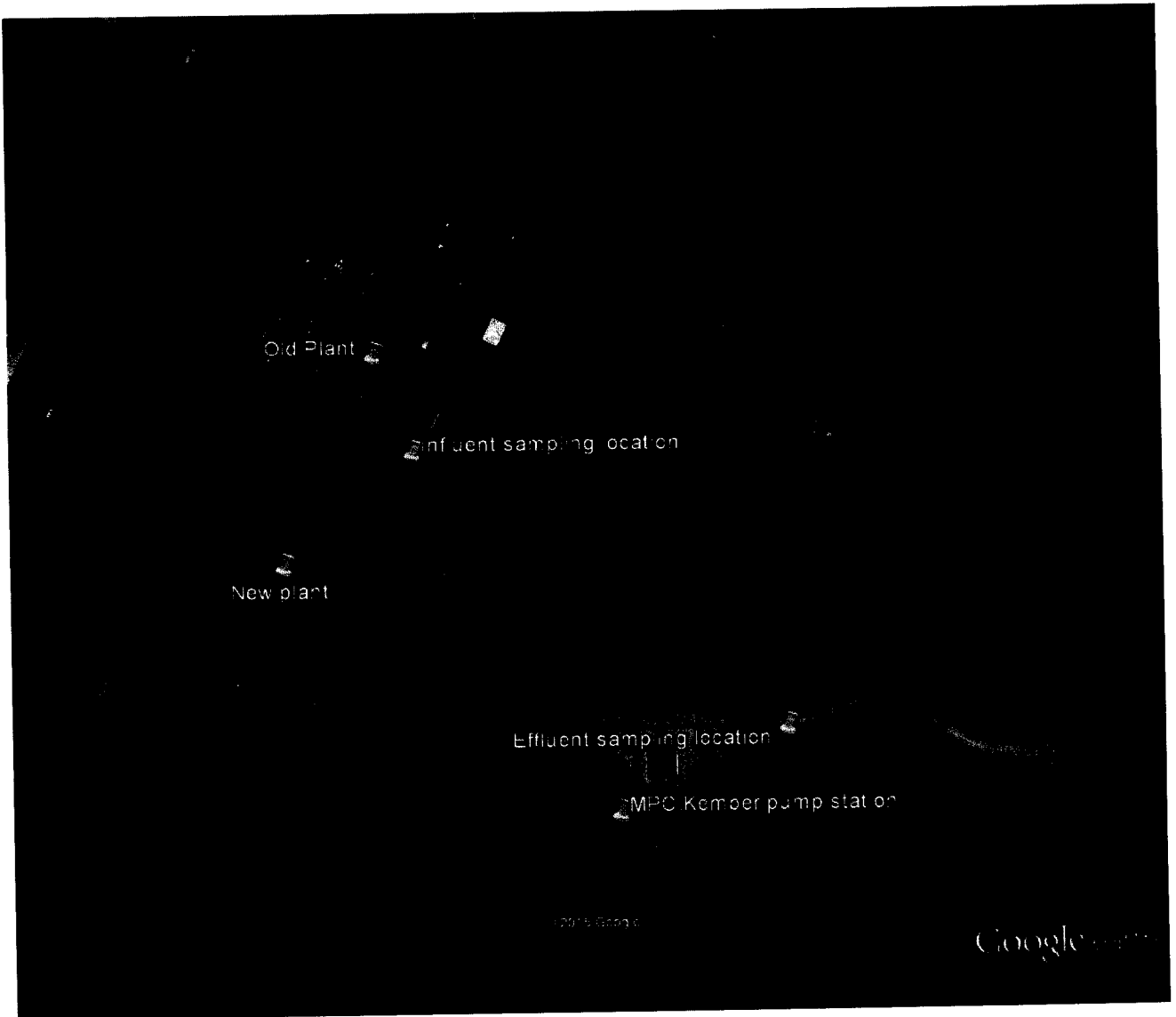
### **Recommendations:**

- Plant upgrades need to occur as soon as possible. A construction schedule should be developed by the city for the proposed plant upgrades. At the time of this report no schedule had been developed. Plans for the plant upgrades were provided to the SESD on March 18, 2015.
- Additional resources need to be allocated for maintenance teams to repair the aging plant systems; such as, the RAS piping and the broken chain drive.
- Dedicated RAS and WAS meters need to be installed. Accurate, timely process flow measurement of the biological systems will help make the plant to become more efficient.
- Plant upgrades should aid with some of the current I&I issues.
- City officials should continue to investigate innovative solutions for water reuse which enables the City of Meridian to create more efficient and sustainable operations.

Figure 1: Meridian, MS South Plant Facility diagram



**Figure 2**  
**Google Earth Photo of Meridian POTW**  
**(South Plant)**  
**Meridian, MS (Lauderdale County)**



## DISCUSSION OF FIELD ACTIVITIES

The purpose of the compliance sampling inspection of the facility was to compare the analytical data gathered against the wastewater discharge limitations, monitoring requirements and other conditions set forth in the MSDEQ permit. Additionally, the progress on proposed construction upgrades was evaluated.

SESD personnel arrived at the site at about 9:00 AM on March 17, 2015, and met with Mr. Terry Cooke JR (Chief Operator), Mr. Hugh Smith (Director of Utilities), and Mr. Jim Harvey (MSDEQ). Figure 2 indicates sample locations, and photographs are included in Appendix A. The influent sampling location consisted of samples collected in the influent process after screening and before the flow was split to the old and new plant. See Table 1 for sample identification and location descriptions. The effluent sampling location consisted of samples collected in the manhole below the MPC Kemper pump station. Automated samplers were programmed to collect 24 hour time composite samples from the influent location (M01inf) at 11:00 on 3/17/2015, and from the effluent (M02eff) at 11:00 on 3/17/2015. Grab samples were collected before the automated samplers were started. Primary clarifier samples from the old plant (M06pc) were collected at 12:20 pm on 3/18/2015. Primary clarifier samples from the new plant (M04pc) were collected at 12:00 pm on 3/18/2015. Aeration basin grab samples for total suspended solids and total volatile suspended solids were collected from the old (M07ab) and new (M05ab) plants at 14:25, and 14:20 on 3/18/2015 respectively. Sampling was completed at approximately 15:00 PM on 3/18/2015.

The facility provided influent and effluent data for the period November 2013 to January 2015.

## RESULTS OF ANALYSES

Samples were analyzed in accordance with the *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual*, most recent version. Automatic sampling locations were sampled for CBOD5, TSS, total metals, nutrients, and cyanide. Grab samples were collected for CBOD5, TSS, TVSS and nutrients. The analytical methods used are presented in SESD's analytical reports included as appendix D. Water quality parameters were measured in-situ. Table 3, page 10, summarizes the SESD sampling results versus permitted limits. Laboratory analysis indicate that all sample results are within permit requirements listed in the MSDEQ permit.

The strength of the influent wastewater for CBOD5, ammonia, nitrate-nitrite, total phosphorous, and Total Kjeldahl Nitrogen (TKN) was low-range. The findings are consistent with a plant having an aging infrastructure and inflow & infiltration (I&I) issues. Table 2 shows a comparison of SESD influent analytical results and typical influent wastewater concentrations. The City of Meridian influent values are typical of many medium strength municipalities.

**Table 1**  
**Sample Identification and location descriptions**

<b>Sample Identification</b>	<b>Location Description</b>
M01inf	Influent setup after screening, before split to old and new plant. See photo 1126 page 17.
M02eff (outfall 002)	Effluent sampler setup below MPC Kemper pump station at manhole. See photo 1132 page 17.
M04pc	New plant: grab sample from primary clarifier.
M05ab	New plant; grab sample from first stage aeration basin, effluent discharge.
M06pc	Old plant: grab sample from primary clarifier.
M07ab	Old plant; grab sample from aeration basin, effluent discharge.

**Table 2**  
**Comparison of Influent Results**

<b>Parameter</b>	<b>Typical Value*</b>			<b>City of Meridian Influent EPA Result</b>
	<b>Low</b>	<b>Medium</b>	<b>High</b>	
CBOD <sub>5</sub> ( mg/L)	110	190	350	100
TSS ( mg/L)	120	210	400	150
TKN ( mg/L)	20	41	70	15
Ammonia ( mg/L)	12	25	45	11
Nitrate/Nitrite as N ( mg/L)	0	0	0	0.075
Total Phosphorus ( mg/L)	4	7	12	6.9

\*Wastewater Engineering: Treatment and Reuse" 4<sup>th</sup> edition, Metcalf& Eddy, 2003.  
McGraw- Hill Companies, Inc. NYC<sup>3</sup>

**Table 3: EPA Sampling results and effluent permit limits**

<b>Parameter</b>	<b>Effluent Permit Limit (Monthly conc. Ave.)</b>	<b>Influent (M01inf)</b>	<b>Primary Clarifier Old Plant (M06pc)</b>	<b>Primary Clarifier New plant (M04pc)</b>	<b>Effluent (M02eff)</b>	<b>Removal Efficiency %</b>
CBOD <sub>5</sub> ( mg/L)	10 (85 % removal)	100	64	59	6.5A	93.5
TSS ( mg/L)	30 (85% removal)	150	57	48	10	93.3
TKN ( mg/L)	none	15	11	10	1.4	90.6
Ammonia ( mg/L)	report only	11	6.7	7.3	0.28	99.7
Nitrate +nitrite ( mg/L)	none	0.075	0.068	0.050U	7.7	n/a
Total Phosphorus ( mg/L)	report only	6.9	2.3	2.5	1.7	75.3
Total Copper (mg/l)	0.0051	0.01 U	Not sampled	Not sampled	0.01 U	n/a
Cyanide (mg/l)	0.0053	Not sampled	Not sampled	Not sampled	15U	n/a
pH, S.U.	6-9	6.69	Not sampled	Not sampled	6.60	n/a
Dissolved Oxygen (mg/l)	6.0 min	Not sampled	Not sampled	Not sampled	8.73	n/a

In-situ water quality measurements are listed in Table 4. Results are within permit requirements listed in the MSDEQ permit.

**Table 4 In-situ measurement data recorded on March 17, 2015**

Parameters	Influent	Effluent
pH	6.69 @ 21.5°C	6.60 @ 22.6°C
Specific conductance	415 us/cm	325 us/cm
Dissolved oxygen	not conducted	8.73 mg/l
Total residual chlorine	not conducted	0.09 mg/l

The Meridian laboratory provided process control data for March 17, 2015. The analytical results from the SESD laboratory and the Meridian laboratory are comparable. Both aeration trains (old and new) exhibited similar sludge volume index (SVI) results in the 50-150 range. This range is typical for a well-operated activated sludge wastewater system. Process control interpretation of the SVI indicate a rapid settling sludge associated with older oxidized sludge. The food to microorganism (F/M) ratio of a typical conventional activated sludge plant is between 0.2 and 0.6 \*. The values are listed in Table 5: Process Control Data. The F/M ratio for the old plant is under typical values. This could be due to the Inflow and Infiltration (I&I) issues associated with the old plant and subsequent light BOD loading, or due to the lack of proper process RAS/WAS flow meters. The MLSS/MLVSS solids under aeration appear adequate for typical design parameters. See calculations in appendix B page 20. SESD's complete analytical reports are included as appendix D

**Table 5: Process Control Data**

Process Control	Old Plant	New Plant (first stage)
SVI	81	141
MLSS / MLVSS (mg/L)	MLSS=4100 MLVSS=2700	MLSS= 2400 MLVSS=1760
Solids in aeration tank (lbs.)	60,147.3 lbs.	18,714.9 lbs.
F/M ratio	0.033	0.30

\*Wastewater Engineering: Treatment and Reuse" 4<sup>th</sup> edition, Metcalf& Eddy, 2003.  
McGraw- Hill Companies, Inc. NYC<sup>3</sup>

The analytical results indicate the facility is optimizing the activated sludge process for both the old and the new plant. Table 6 summarizes the removal efficiency of the South Plant. Considering the facility's infrastructure limitations, the plant showed a high removal efficiency of solids and nutrients.

**Table 6: Removal Efficiency**

Parameters	South Plant	Old Plant (M06pc)	New Plant (M04pc)
	Influent-effluent %	influent- primary clarifier %	influent- primary clarifier %
CBOD5	93.5	36	41
TSS	93.5	62	68
Ammonia	99.7	39	33.6
Phosphorus	75.3	66.6	63.7

Note: Removal efficiency calculation = % (in-out/in \*100)

The flow measurement systems for both the old and new plant were accurate. Table 7 describes flow measurement in the south plant. Primary and secondary devices for influent and effluent were within 6 % of each other. This is within the EPA recommended percentage of 10 percent.

**Table 7: Flow Measurement**

Location	Old or New Plant	Type of Primary Device	Head reading	Primary device Flow MGD	Type of Secondary Device	Secondary device Flow MGD	% error with secondary device.*
Influent	Old Plant	Parshall flume (1 foot)	0.96 feet	2.429	Siemens ultrasonic	2.516	3.58 %
	New Plant	Parshall flume (2 foot)	1.34 feet	8.138	Siemens ultrasonic	8.450	3.83%
Effluent	Old Plant	Parshall flume (2 foot)	1.2 feet	2.353	Siemens ultrasonic	2.371	0.76 %
	New Plant	Parshall flume (1 foot)	0.94 feet	6.858	ISCO 3010	6.465	5.73%

Note: % Error calculation = (primary-secondary/primary x 100)\*

## RESULTS OF FIELD QUALITY CONTROL SAMPLES

Field quality control samples for this investigation consisted of:

- Sample ERB was an equipment rinse blank used as in-house quality control to test the uncontaminated quality of the automated samplers (Teflon tubing and composite bottle).
- For the metals, nutrients, CBOD5, and TSS analysis sample M02eff (automatic sampler) was used as the source for the matrix spike/matrix spike duplicate (MS/MSD) sample. For the Cyanide analyses sample M02eff (grab) was used as the source matrix spike/matrix spike duplicate (MS/MSD) samples.
- Results of quality control analyses are contained in the Laboratory Analytical Reports in appendix C, and are acceptable for the purposes of this investigation.

## METHODOLOGY

Field activities were conducted in accordance with the Region 4, *SESD Field Branches Quality System and Technical Procedures*. Specific field procedures applicable to this investigation included the following:

Wastewater Sampling, SESDPROC-306-R3  
Wastewater Flow Measurement, SESDPROC-109-R3  
Global Positioning System, SESDPROC-110-R3  
Logbooks, SESDPROC-10-R5  
Field pH, SESDPROC-100-R3  
Field Specific Conductance, SESDPROC-101-R5  
Field Temperature, SESDPROC-102-R4  
Field Equipment Cleaning and Decontamination, SESDPROC-205-R2  
Management of Investigation Derived Waste, SESDPROC-202-R3  
NPDES Compliance Inspection Manual 7/2004

The SESD laboratory is accredited by the ANSI-ASQ National Accreditation Board/ACLASS for ISO/IEC 17025. The SESD Field Branches are accredited by the ANSI-ASQ National Accreditation Board/ACLASS for ISO/IEC 17025 for Forensic Testing.

## CONCLUSIONS

The City of Meridian POTW should continue to investigate innovative solutions for water reuse which enables the City to create more efficient and sustainable operations. The SESD findings from this investigation indicate three major issues that need to be remedied.

1. Plant infrastructure is aging and failing. Plant upgrades need to occur as soon as possible. A construction schedule should be developed by the city for the proposed plant upgrades.
2. Additional resources need to be allocated for maintenance teams to repair the aging plant infrastructure.
3. I&I issues need to be addressed as funding is available. I&I issues will continue, but the plant upgrades will aid with some of the problems.

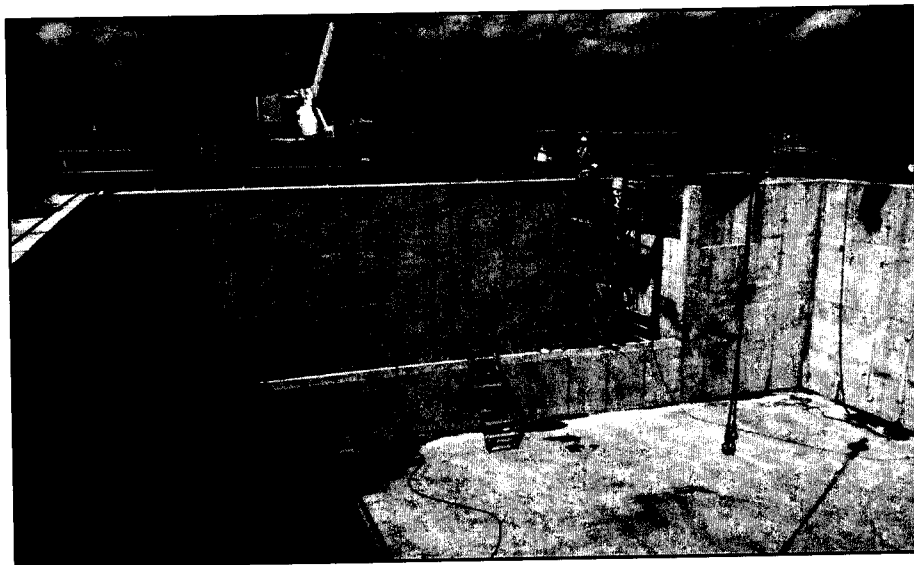
## **REFERENCES**

1. "Wastewater Engineering: Treatment and Reuse" 4<sup>th</sup> edition, Metcalf& Eddy, 2003.  
McGraw- Hill Companies, Inc. NY
2. "Operation of Wastewater Treatment Plants" Volume 1, 2, Seventh Edition, California State University, Sacramento, 2008
3. "Isco Open Channel Flow Measurement Handbook" sixth edition, Teledyne Isco, Inc. 2008.  
Lincoln, NE
4. "Advanced Waste Treatment", Fifth Edition, California State University, Sacramento, 2002.
5. "Water Supply and Control" 3<sup>rd</sup> edition, Clark, Viessman, Hammer, 1977.  
Thomas T. Crowell Company, Inc.
7. "Wastewater Treatment/Disposal for Small Communities" Office of Water U.S.EPA  
EPA/625/R-92/005, August 1992
8. NPDES Compliance Inspection Manual, Office of Enforcement and Compliance  
Assurance U.S.EPA, September 1994
9. Aerobic Biological Wastewater Treatment Facilities, Process Control Manual,  
Office of Water U.S.EPA, EPAIII-A-524-77, March 1977

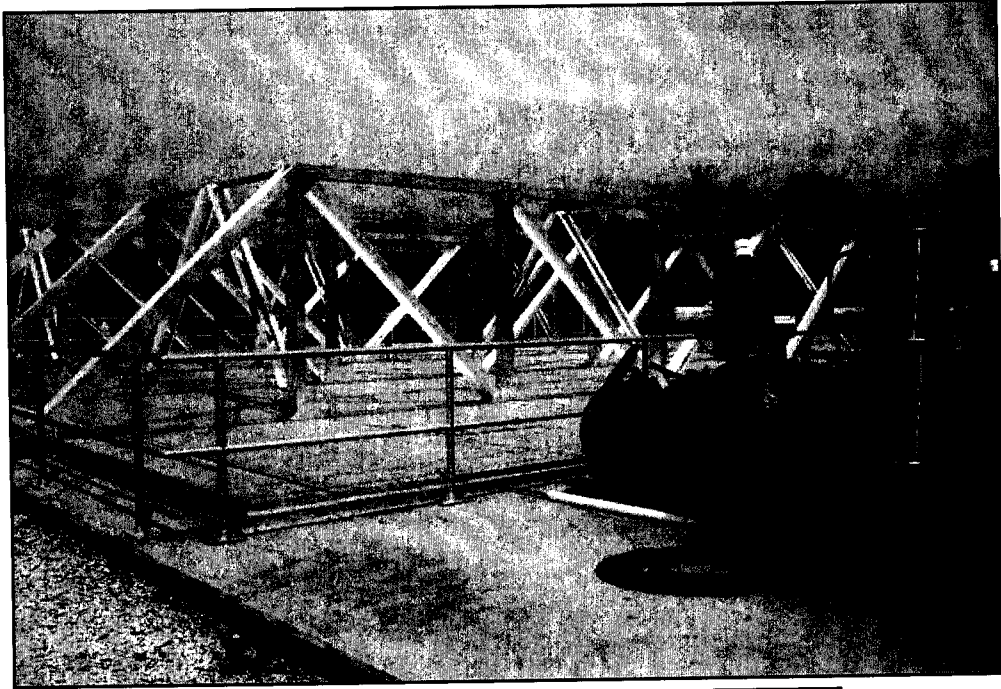
**Appendix A**  
**Photographs of Meridian POTW March 17 and 18, 2015**  
**All photographs taken by B. Simpson**



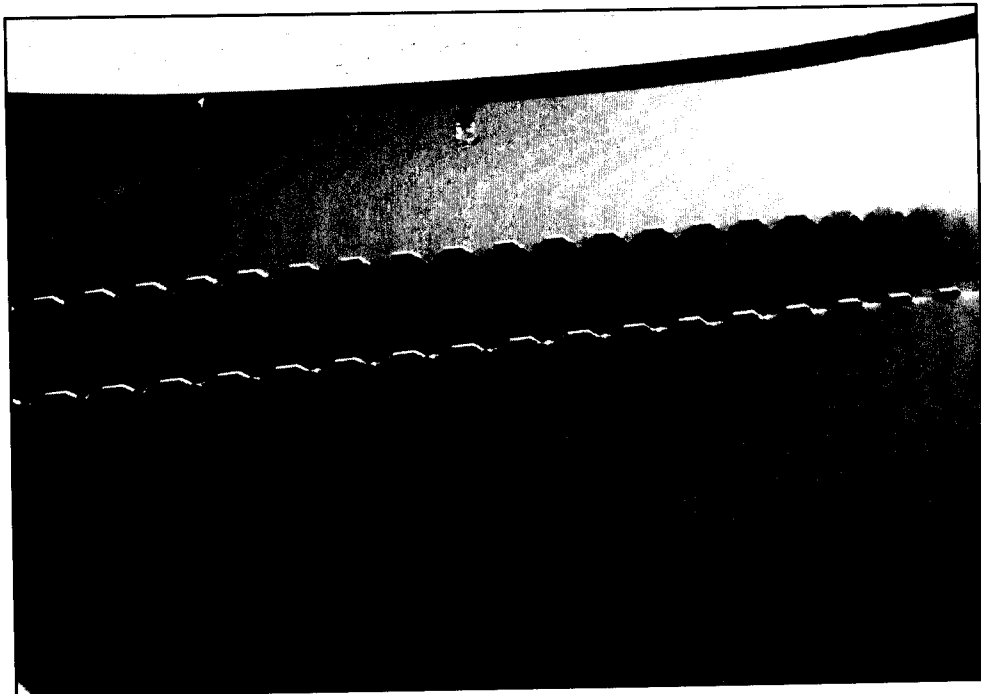
**Photo 1131– 3/17/15**  
**MPC Kemper Pump Station, Facing south**



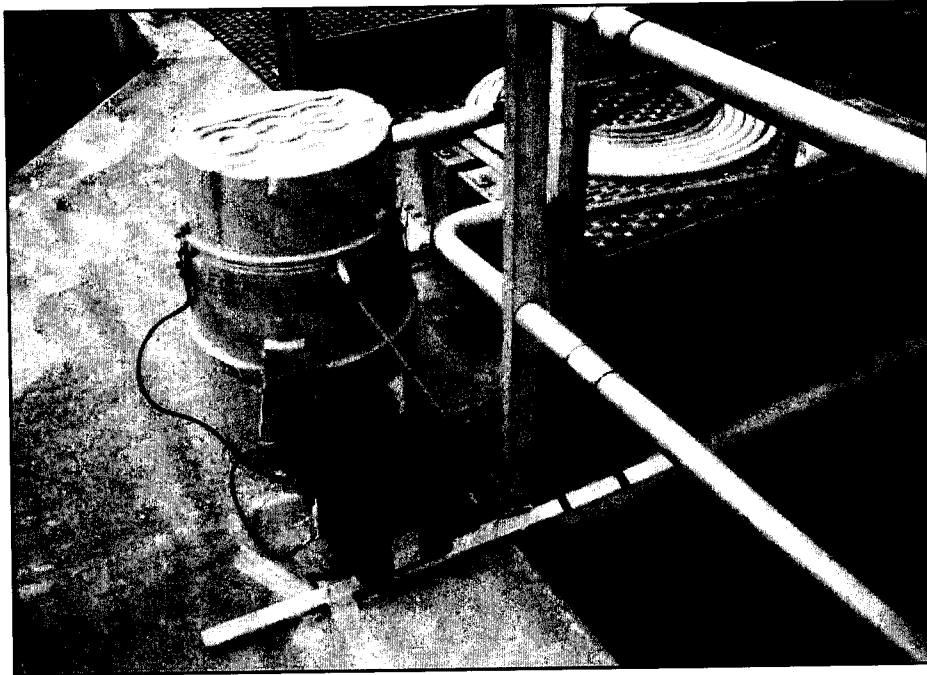
**Construction photo– Facility photo**  
**MPC Kemper Pump Station, under**  
**construction. Facing east**



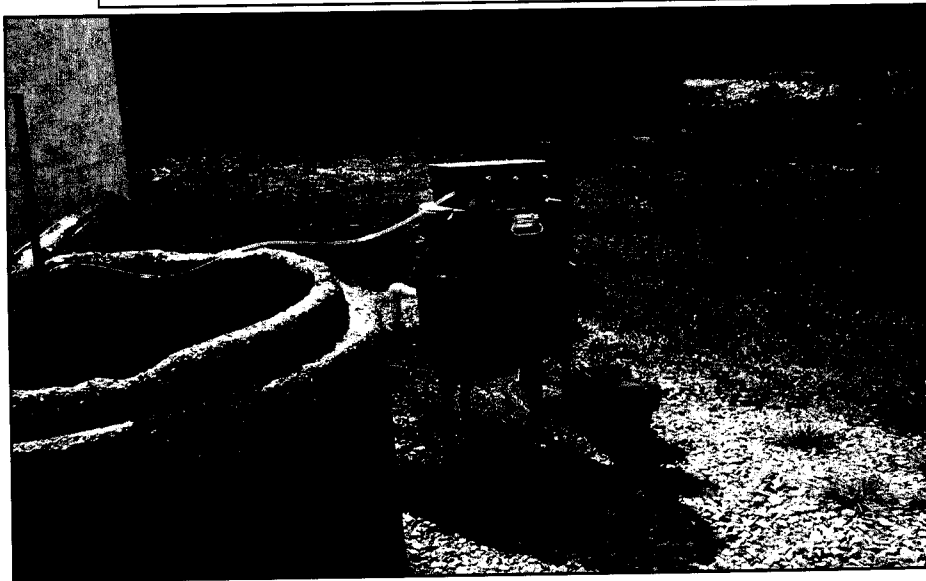
**Photo 1128– 3/17/15**  
**MPC Kemper Pump Station, construction**  
**complete. Facing east**



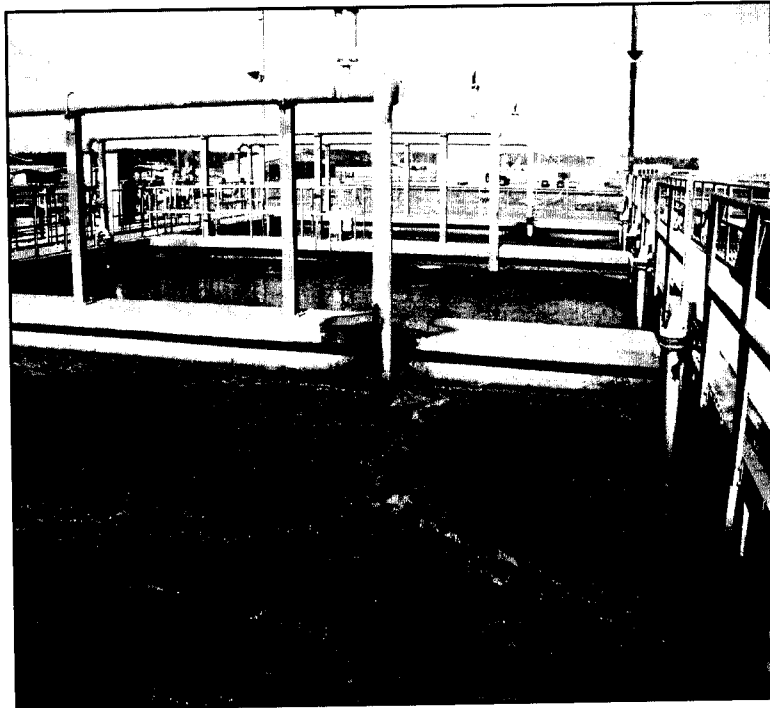
**Photo 1109– 3/17/15**  
**Repaired weir plate on clarifier (old plant)**  
**Facing east**



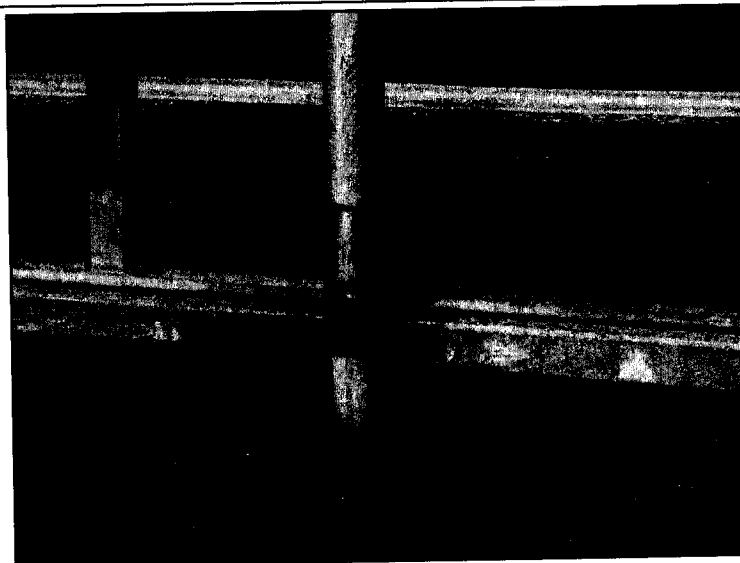
**Photo 1126– 3/17/15**  
**Influent sampler setup below screening**  
**Facing north**



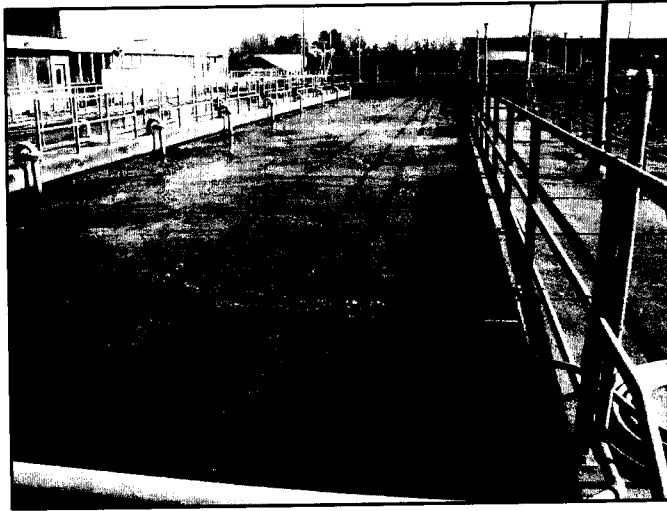
**Photo 1132– 3/17/15**  
**Effluent sampler setup below MPC Kemper pump**  
**station. Facing west**



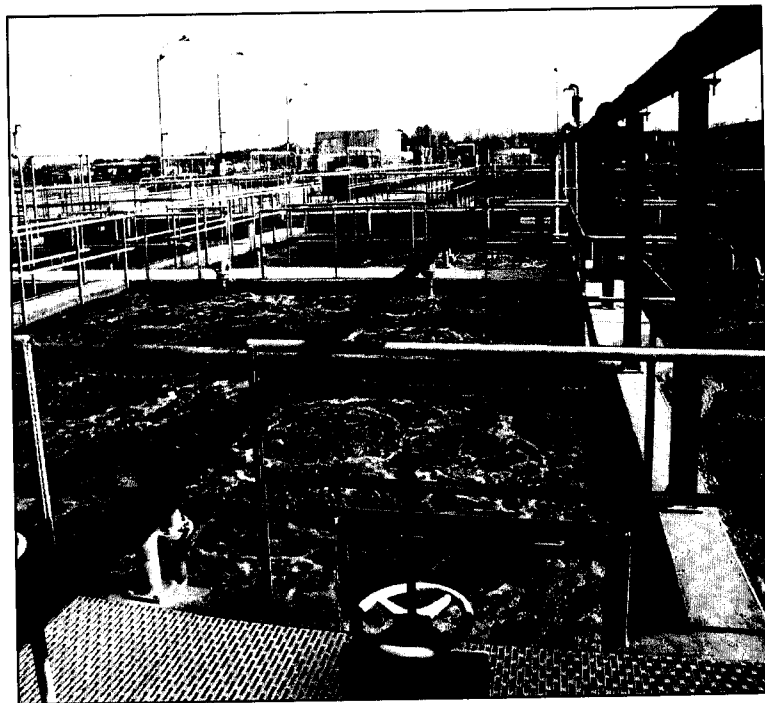
**Photo 1114– 3/17/15**  
**Pin hole leaks on the RAS piping**  
**Facing north**



**Photo 1115– 3/17/15**  
**Temporary repairs on the RAS piping (background of**  
**photo 1114) Facing north**



**Photo 1110– 3/17/15**  
**Aeration basin old plant**  
**Facing east**



**Photo 1117– 3/17/15**  
**Aeration basin new plant**  
**Facing east**

## Appendix B, Calculations Page

“Operation of Wastewater Treatment Plants” Volume 1, Seventh Edition,  
California State University, Sacramento, 2008 p.481 and 482 (calculations\*)

$$\text{*Sludge Volume Index} = \frac{(\text{settable solids, \%})(10,000)}{\text{MLSS, mg/l}}$$

$$\text{Old Plant} = 34 \% * 10,000/4200, \text{mg/l} = 81$$

$$\text{New Plant} = 65 \% * 10,000/4600, \text{mg/l} = 141$$

\* Settable solids data obtained from facility.

$$\text{Aeration volume} = \text{Length} \times \text{Width} \times \text{Depth} \times 7.48 \text{ cu. feet/gallon} = \text{total gallons} \times \text{aeration units} = \text{total gallons of aeration.}$$

$$\text{Old Plant: aeration volume} = 150 \times 28 \times 14 = 58,800 \text{ cu ft.} \times 7.48 \text{ cu ft. / gallon} = 439,824 \text{ gallons} \times 4 \text{ aeration units} = 1,759,296 \text{ total gallons.}$$

$$\text{New Plant (first stage): aeration volume} = 47.4 \times 29.3 \times 15 = 20,832.3 \text{ cu ft.} \times 7.48 \text{ cu ft. / gallon} = 155,825.6 \text{ gallons} \times 6 \text{ aeration units} = 934,953.62 \text{ total gallons.}$$

$$\text{New Plant (second stage): aeration volume} = 75.1 \times 29.33 \times 15 = 33,040.3 \text{ cu ft.} \times 7.48 \text{ cu ft. / gallon} = 247,141.4 \text{ gallons} \times 6 \text{ aeration units} = 1,482,848.4 \text{ total gallons.}$$

\* Aeration volume estimates obtained from blueprints and facility.

**\*Food to Microorganism ratio(simplified)**

$$\frac{\text{Food} = \text{Flow}(Q), \text{mgd} * \text{CBOD}, \text{mg/l}}{\text{Microorganisms} = \text{Volume aeration, mg} * \text{MLVSS, mg/l}}$$

$$\text{Old Plant} = 2.46 \text{ mgd} * 64 \text{ mg/l} / 1.76 \text{ mg} * 2700 \text{ mg/l} = 0.033$$

$$\text{New Plant (first stage)} = 8.46 \text{ mgd} * 59 \text{ mg/l} / 0.934 \text{ mg} * 1760 \text{ mg/l} = 0.30$$

\* Aeration volume estimates obtained from blueprints and facility.

**Solids in the Aeration Tank**

$$\text{Aerator solids, lbs.} = (\text{tank volume, mg/l}) (\text{MLSS, mg}) (8.34 \text{ lbs./gallon})$$

$$\text{Old Plant aerator solids, lbs.} = 1.759 \text{ mg} \times 4100 \text{ mg/l} \times 8.34 \text{ lbs./gallon} = \mathbf{60,147.3 \text{ lbs.}}$$

$$\text{New Plant (first stage) aerator solids, lbs.} = .935 \text{ mg} \times 2400 \text{ mg/l} \times 8.34 \text{ lbs./gallon} = \mathbf{18,714.9 \text{ lbs.}}$$

$$\text{New Plant (2nd stage) aerator solids, lbs.} = 1.48 \text{ mg} \times 2400 \text{ mg/l} \times 8.34 \text{ lbs./gallon} = \mathbf{29,623.7 \text{ lbs.}}$$

## Appendix C: Correspondence

**MERIDIAN**

CITY OF MERIDIAN

**FILE COPY**

A better longitude on life. February 6, 2014

**Mayor:**

PERCY BLAND, III  
(601) 485-1927  
FAX: (601) 485-1911

**Council Members:**

GEORGE M. THOMAS  
Ward 1

K. DUSTIN MARKHAM  
Ward 2

BARBARA HENSON  
Ward 3

KIM HOUSTON  
Ward 4

RANDY HAMMON  
Ward 5

COUNCIL CLERK  
(601) 485-1959  
FAX: (601) 485-1913

**CITY DEPARTMENTS:**

Chief Administrative Officer  
(601) 485-1929  
FAX: (601) 485-1911

Community Development:  
(601) 485-1910  
FAX: (601) 484-6813

Finance and Records:  
(601) 485-1946  
FAX: (601) 485-1979

Fire:  
(601) 485-1922  
FAX: (601) 485-1035

Homeland Security:  
(601) 484-6890  
FAX: (601) 484-6895

Parks and Recreation:  
(601) 485-1802  
FAX: (601) 485-1851

Police:  
(601) 485-1841  
FAX: (601) 484-6832

Public Works:  
(601) 485-1920  
FAX: (601) 485-1864

Mr. Bradley Crane

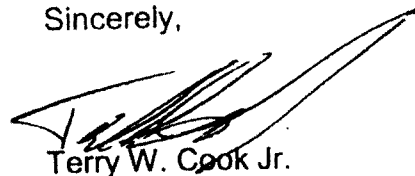
Mississippi Department of Environmental Quality  
Environmental Permits Division  
P.O. Box 2261  
Jackson, MS 392259-2261

Dear Mr. Crane:

RE: East Meridian POTW  
NPDES Permit # MS0055735  
Lauderdale County

The East Meridian Wastewater Treatment Plant is no longer able to discharge to Sowashee Creek. The last time of discharge on permit MS0055735 was November 08 2013. During the rest of November and December the discharge pumps and piping that allowed for discharge to the creek were removed. The East Meridian plant can only internal discharge to Kemper (Coal Plant) or down to (Main) Meridian Wastewater Treatment plant to discharge into Sowashee under permit MS0020117. I am requesting that permit MS0055735 be terminated. If you have any questions, you may contact me at 601 485-1815.

Sincerely,



Terry W. Cook Jr.

Chief Utility Plant Operator, Wastewater Treatment Plant

cc: Percy Bland, Mayor  
Mike McGrevey, CAO  
Hugh Smith, Public Works Director



**FILE COPY**

**STATE OF MISSISSIPPI**

PHIL BRYANT  
GOVERNOR

**MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY**

TRUDY D. FISHER, EXECUTIVE DIRECTOR

May 16, 2014

Mr. Terry Cook Jr.  
East Meridian POTW  
PO Box 1430  
Meridian, Mississippi 39302-1430

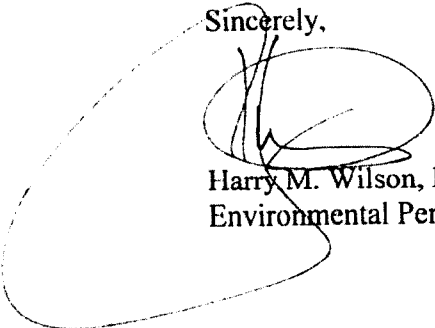
Dear Mr. Cook

Re: East Meridian POTW  
Lauderdale County  
Water Ref. No. MS0055735

The Environmental Permits Division is in receipt of your written request for termination of the above referenced environmental permit. It is our understanding that closure in accordance with the Closure Plan you submitted to our office is complete. Please be advised that as per the date of this letter, the above referenced environmental permit is hereby revoked.

If you have any questions regarding this matter or any future environmental permitting matters, please contact Jake Wallace at (601) 961-5171.

Sincerely,



Harry M. Wilson, P.E., DEE, Chief  
Environmental Permits Division

cc:

13262 PER20090001

**Appendix D**  
**SESD Laboratory Report**

**Classical/Nutrient Analyses (CNA) and Total Metals**  
**Final Analytical Report- 24 pages**



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

April 22, 2015

4SESD-ASB

**MEMORANDUM**

**SUBJECT:** FINAL Analytical Report  
Project: 15-0233, Meridian POTW Diagnostic Inspection  
Compliance Monitoring

**FROM:** Jeffrey Hendel  
ASB Inorganic Chemistry Section Chief

**THRU:** Danny France, Chief  
Analytical Support Branch

**TO:** Bill Simpson

Attached are the final results for the analytical groups listed below. These analyses were performed in accordance with the Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM) found at [www.epa.gov/region4/sesd/asbsop](http://www.epa.gov/region4/sesd/asbsop). Any unique project data quality objectives specified in writing by the data requestor have also been incorporated into the data unless otherwise noted in the Report Narrative. Chemistry data have been verified based on the ASB LOQAM specifications and have been qualified by this laboratory if the applicable quality control criteria were not met. Verification is defined in Section 5.2 of the ASB LOQAM. For a listing of specific data qualifiers and explanations, please refer to the Data Qualifier Definitions included in this report. The reported results are accurate within the limits of the method(s) and are representative only of the samples as received by the laboratory.

Analyses Included in this report:	Method Used:	Accreditations:
-----------------------------------	--------------	-----------------

**Classical/Nutrient Analyses (CNA)**

Ammonia/TKN	EPA 350.1 (Water)	ISO
Ammonia/TKN	EPA 351.2 (Water)	ISO
Cyanide	EPA 335.4 (Water)	ISO
Demand	SM 5210B (Water)	ISO
Nitrate and/or Nitrite	EPA 353.2 (Water)	ISO
Phosphorous	EPA 365.1 (Water)	ISO
Solids	USGS I-3765-85 (Water)	ISO

**Total Metals (TMTL)**

Total Metals	EPA 200.7 (Water)	ISO
Total Metals	EPA 200.8 (Water)	ISO



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

**Sample Disposal Policy**

Because of the laboratory's limited space for long term sample storage, our policy is to dispose of samples on a periodic schedule. Please note that within 60 days of this memo, the original samples and all sample extracts and/or sample digestates will be disposed of in accordance with applicable regulations. The 60-day sample disposal policy does not apply to criminal samples which are held until the laboratory is notified by the criminal investigators that case development and litigation are complete.

These samples may be held in the laboratory's custody for a longer period of time if you have a special project need. If you wish for the laboratory to hold samples beyond the 60-day period, please contact our Sample Control Coordinator by e-mail at [R4SampleCustody@epa.gov](mailto:R4SampleCustody@epa.gov), and provide a reason for holding samples beyond 60 days



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

**SAMPLES INCLUDED IN THIS REPORT**

**Project: 15-0233, Meridian POTW Diagnostic Inspection**

Sample ID	Laboratory ID	Matrix	Date Collected	Date Received
ERB	E151203-01	Equipment Rinse Blank	3/17/15 11:10	3/19/15 14:55
M01inf	E151203-02	Municipal Proc. Wastewater	3/18/15 13:55	3/19/15 14:55
M02eff	E151203-03	Municipal Eff. Wastewater	3/18/15 11:30	3/19/15 14:55
M04pc	E151203-04	Municipal Proc. Wastewater	3/18/15 12:00	3/19/15 14:55
M05ab	E151203-05	Municipal Proc. Wastewater	3/17/15 14:20	3/19/15 14:55
M06pc	E151203-06	Municipal Proc. Wastewater	3/18/15 12:20	3/19/15 14:55
M07ab	E151203-07	Municipal Proc. Wastewater	3/17/15 14:25	3/19/15 14:55



## UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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### DATA QUALIFIER DEFINITIONS

U	The analyte was not detected at or above the reporting limit.
A	The analyte was analyzed in replicate. Reported value is an average value of the replicates.
CR	Analyte concentration high in continuing calibration verification blank
J	The identification of the analyte is acceptable; the reported value is an estimate.
QM-2	Matrix Spike Recovery greater than method control limits
QR-1	MRL verification recovery less than lower control limits.

### ACRONYMS AND ABBREVIATIONS

CAS	Chemical Abstracts Service  Note: Analytes with no known CAS identifiers have been assigned codes beginning with "E", the EPA ID as assigned by the EPA Substance Registry System ( <a href="http://www.epa.gov/srs">www.epa.gov/srs</a> ), or beginning with "R4-", a unique identifier assigned by the EPA Region 4 laboratory.
MDL	Method Detection Limit - The minimum concentration of a substance (an analyte) that can be measured and reported with a 99% confidence that the analyte concentration is greater than zero.
MRL	Minimum Reporting Limit - Analyte concentration that corresponds to the lowest demonstrated level of acceptable quantitation. The MRL is sample-specific and accounts for preparation weights and volumes, dilutions, and moisture content of soil/sediments.
TIC	Tentatively Identified Compound - An analyte identified based on a match with the instrument software's mass spectral library. A calibration standard has not been analyzed to confirm the compound's identification or the estimated concentration reported.

#### ACCREDITATIONS:

ISO	The test, if analyzed after June 26, 2012, is accredited under the EPA Region 4 ASB's ISO/IEC 17025 accreditation issued by ANSI-ASQ National Accreditation Board/ACLASS. Refer to certificate and scope of accreditation AT-1691.
NR	The EPA Region 4 Laboratory has not requested accreditation for this test.



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D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

## Total Metals

Project: 15-0233, Meridian POTW Diagnostic Inspection

Sample ID: ERB

Lab ID: E151203-01

Station ID:

Matrix: Equipment Rinse Blank

Date Collected: 3/17/15 11:10

CA#	Sample Number	Analyte	Result	Qualifier	Units	REL	Received	Analyzed	Method
7429-30-5		Aluminum	100 U		ug/L	100	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-36-0		Antimony	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 16:55	EPA 200.8
7440-33-2		Arsenic	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 16:55	EPA 200.8
7440-39-3		Barium	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-41-7		Beryllium	3.0 U		ug/L	3.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-43-9		Cadmium	0.50 U		ug/L	0.50	3/24/15 7:01	4/13/15 16:55	EPA 200.8
7440-70-2		Calcium	250 U		ug/L	250	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-47-3		Chromium	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-48-4		Cobalt	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-50-8		Copper	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7439-89-6		Iron	100 U		ug/L	100	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7439-92-1		Lead	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 16:55	EPA 200.8
7439-95-4		Magnesium	250 U		ug/L	250	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7439-96-5		Manganese	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7439-98-7		Molybdenum	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-02-0		Nickel	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-09-7		Potassium	1000 U		ug/L	1000	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7782-49-2		Selenium	2.0 U		ug/L	2.0	3/24/15 7:01	4/13/15 16:55	EPA 200.8
7440-22-4		Silver	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-23-5		Sodium	1000 U		ug/L	1000	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-24-6		Strontium	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-28-0		Thallium	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 16:55	EPA 200.8
7440-31-5		Tin	15 U		ug/L	15	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-32-6		Titanium	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-62-2		Vanadium	5.0 U, 1, QR-1		ug/L	5.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-65-5		Yttrium	3.0 U		ug/L	3.0	3/24/15 6:59	3/27/15 11:29	EPA 200.7
7440-66-6		Zinc	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:29	EPA 200.7



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

## Classical/Nutrient Analyses

Project: 15-0233, Meridian POTW Diagnostic Inspection

Sample ID: M01inf

Lab ID: E151203-02

Station ID: M01

Matrix: Municipal Proc. Wastewater

Date Collected: 3/18/15 13:55

Sample ID	Parameter	Result	Units	MRL	Prepared	Analyzed	Method
7664-4157	Ammonia as N	11	mg/L	1.0	4/9/15 16:44	4/13/15 14:20	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	15	mg/L	1.0	4/9/15 16:44	4/13/15 13:30	EPA 351.2
E1640614	BOD, 5 Day Carbonaceous	100	mg/L	2.0	3/20/15 8:42	3/25/15 11:32	SM 521BB
E701177	Nitrate/Nitrite as N	0.075	mg/L	0.050	4/9/15 18:27	4/9/15 18:27	EPA 353.2
7723-12-0	Total Phosphorus	6.2	mg/L	1.0	3/23/15 15:47	4/9/15 15:23	EPA 8654
E1642818	Total Suspended Solids	150	mg/L	4.0	3/24/15 13:45	3/24/15 23:18	USGS I-3765-85



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D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

## Total Metals

Project: 15-0233, Meridian POTW Diagnostic Inspection

Sample ID: M02eff

Lab ID: E151203-03

Station ID: M02

Matrix: Municipal Eff. Wastewater

Date Collected: 3/18/15 11:30

Sample ID	Analyte	Results	Qualifier	Units	MCL	Prepared	Analyzed	Method
7439-96-5	Aluminum	150		ug/L	100	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-36-0	Antimony	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 17:02	EPA 200.8
7440-38-2	Arsenic	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 17:02	EPA 200.8
7440-39-3	Barium	22		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-41-7	Beryllium	3.0 U		ug/L	3.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-43-9	Cadmium	0.50 U		ug/L	0.50	3/24/15 7:01	4/13/15 17:02	EPA 200.8
7440-46-2	Calcium	26000		ug/L	250	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-47-3	Chromium	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-48-4	Cobalt	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-50-8	Copper	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7439-89-6	Iron	500		ug/L	100	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7439-92-1	Lead	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 17:02	EPA 200.8
7439-95-4	Magnesium	4100		ug/L	250	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7439-96-5	Manganese	25		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7439-98-7	Molybdenum	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-02-0	Nickel	10 U		ug/L	10	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-09-7	Potassium	5700		ug/L	1000	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7782-49-2	Selenium	2.0 U		ug/L	2.0	3/24/15 7:01	4/13/15 17:02	EPA 200.8
7440-22-4	Silver	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-23-5	Sodium	29000		ug/L	1000	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-24-6	Strontium	120		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-28-0	Thallium	1.0 U		ug/L	1.0	3/24/15 7:01	4/13/15 17:02	EPA 200.8
7440-31-5	Tin	15 U		ug/L	15	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-32-6	Titanium	5.0 U		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-62-2	Vanadium	5.0 U, I, QR-1		ug/L	5.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-65-5	Yttrium	3.0 U		ug/L	3.0	3/24/15 6:59	3/27/15 11:33	EPA 200.7
7440-66-6	Zinc	29		ug/L	10	3/24/15 6:59	3/27/15 11:33	EPA 200.7



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

## Classical/Nutrient Analyses

Project: 15-0233, Meridian POTW Diagnostic Inspection

Sample ID: M02eff

Lab ID: E151203-03

Station ID: M02

Matrix: Municipal Eff. Wastewater

Date Collected: 3/18/15 11:30

Number	Analyte	Result	Qualifier	Units	MRL	Prepared	Analyzed	Method
662-41-1	Ammonia as N	0.28		mg/L	0.050	4/13/15 16:43	4/13/15 16:30	EPA 350.1
E17148461	Total Kjeldahl Nitrogen	1.4	J, QM-2	mg/L	0.050	4/09/15 16:44	4/13/15 13:30	EPA 351.2
57-12-5	Cyanide (Total)	15	U	ug/L	15	3/23/15 19:00	3/24/15 8:56	EPA 823.04
E1640614	BOD, 5 Day, Carbonaceous	6.5	A	mg/L	2.0	3/20/15 8:32	3/25/15 11:52	SM 5210B
E901427	Nitrate/Nitrite as N	7.7		mg/L	1.0	4/09/15 18:27	4/09/15 13:27	EPA 353.2
7723-14-0	Total Phosphorus	1.7		mg/L	1.0	3/31/15 13:43	4/01/15 15:23	EPA 365.1
E1642818	Total Suspended Solids	10		mg/L	4.0	3/24/15 13:45	3/24/15 23:18	USGS 1-3765-82



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**Classical/Nutrient Analyses**

**Project: 15-0233, Meridian POTW Diagnostic Inspection**

Sample ID: **M04pc**

Lab ID: **E151203-04**

Station ID: **M04**

Matrix: Municipal Proc. Wastewater

Date Collected: 3/18/15 12:00

CA# Number	Analyte	Results Qualifiers	Units	MRP Proposed	MRP Proposed	MRP Proposed
7064241-7	Ammonia as N	7.3	mg/L	1.0	4/09/15 16:45	4/09/15 16:44
E17148461	Total Kjeldahl Nitrogen	10 J, CR	mg/L	1.0	4/09/15 16:44	4/13/15 13:30
E1640606	BOD, 5 Day	50	mg/L	2.0	3/20/15 16:38	3/23/15 16:53
E701177	Nitrate/Nitrite as N	0.050 U	mg/L	0.050	4/09/15 18:27	4/09/15 18:27
7073-1441	Total Phosphorus	2.5	mg/L	1.0	3/19/15 13:43	4/01/15 15:22
E1642818	Total Suspended Solids	48	mg/L	4.0	3/24/15 13:45	3/24/15 23:18



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**Classical/Nutrient Analyses**

**Project: 15-0233, Meridian POTW Diagnostic Inspection**

**Sample ID:** M05ab

**Lab ID:** E151203-05

**Station ID:** M05

**Matrix:** Municipal Proc. Wastewater

**Date Collected:** 3/17/15 14:20

Lab Number	Parameter	Result	Qualifier	Units	REL	Standard	Method	Notes
E1642818	Total Suspended Solids	2400		mg/L	4.0	20015 13.45	9245 23.1	13054 1763-15



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Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

## Classical/Nutrient Analyses

Project: 15-0233, Meridian POTW Diagnostic Inspection

Sample ID: M06pc

Lab ID: E151203-06

Station ID: M06

Matrix: Municipal Proc. Wastewater

Date Collected: 3/18/15 12:20

Sample Number	Analysis	Results	Qualifiers	Units	MRL	Prepared	Analyzed	Method
E664241-2	Ammonia as N	6.7		mg/L	1.0	4/09/15 16:48	4/13/15 16:20	EPA 359.1
E17148461	Total Kjeldahl Nitrogen	11	J, CR	mg/L	1.0	4/09/15 16:44	4/13/15 13:30	EPA 351.2
E1630600	BCD, 5 Day	64		mg/L	2.0	3/26/15 8:33	3/23/15 11:35	SM 5210B
E701177	Nitrate/Nitrite as N	0.068		mg/L	0.050	4/09/15 18:27	4/09/15 18:27	EPA 353.2
E723-1-04	Total Phosphorus	2.3		mg/L	1.0	5/31/15 18:43	4/01/15 13:33	EPA 365.1
E1642818	Total Suspended Solids	57		mg/L	4.0	3/24/15 13:45	3/24/15 23:18	USGS 1-3765-85



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## Classical/Nutrient Analyses

Project: 15-0233, Meridian POTW Diagnostic Inspection

Sample ID: M07ab

Lab ID: E151203-07

Station ID: M07

Matrix: Municipal Proc. Wastewater

Date Collected: 3/17/15 14:25

Case Number	Sample	Results	Qualifiers	Units	MDL	Flagged	Analysis Method
E1642818	Total Suspended Solids	4100		mg/L	4.0	57405 1345	32445 2338 USGS 15763-15



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**Total Metals (TMTL) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1503065 - M 200.2 Metals Water**

**Blank (1503065-BLK1)**

Prepared: 03/24/15 Analyzed: 03/27/15

**EPA 200.7**

Aluminum	U	100	ug/L							U
Barium	U	5.0	"							U
Beryllium	U	3.0	"							U
Calcium	U	250	"							U
Chromium	U	5.0	"							U
Cobalt	U	5.0	"							U
Copper	U	10	"							U
Iron	U	100	"							U
Magnesium	U	250	"							U
Manganese	U	5.0	"							U
Molybdenum	U	10	"							U
Nickel	U	10	"							U
Potassium	U	1000	"							U
Silver	U	5.0	"							U
Sodium	U	1000	"							U
Strontium	U	5.0	"							U
Tin	U	15	"							U
Titanium	U	5.0	"							U
Vanadium	U	5.0	"							U
Yttrium	U	3.0	"							U
Zinc	U	10	"							U

**LCS (1503065-BS1)**

Prepared: 03/24/15 Analyzed: 03/27/15

**EPA 200.7**

Aluminum	5110.5	100	ug/L	5000.0	102	85-115
Barium	197.37	5.0	"	200.00	98.7	85-115
Beryllium	50.729	3.0	"	50.000	101	85-115
Calcium	5161.0	250	"	5000.0	103	85-115
Chromium	204.65	5.0	"	200.00	102	85-115
Cobalt	99.649	5.0	"	100.00	99.6	85-115
Copper	98.090	10	"	100.00	98.1	85-115
Iron	5387.2	100	"	5000.0	108	85-115
Magnesium	5348.8	250	"	5000.0	107	85-115
Manganese	533.86	5.0	"	500.00	107	85-115
Molybdenum	103.67	10	"	100.00	104	85-115
Nickel	196.84	10	"	200.00	98.4	85-115
Potassium	9823.9	1000	"	10000	98.2	85-115
Silver	92.787	5.0	"	100.00	92.8	85-115
Sodium	9854.4	1000	"	10000	98.5	85-115



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**Total Metals (TMTL) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1503065 - M 200.2 Metals Water**

<b>LCS (1503065-BS1)</b>				Prepared: 03/24/15 Analyzed: 03/27/15						
Strontium	98.489	5.0	ug/L	100.00		98.5	85-115			
Tin	104.58	15	"	100.00		105	85-115			
Titanium	101.39	5.0	"	100.00		101	85-115			
Vanadium	102.84	5.0	"	100.00		103	85-115			
Yttrium	100.93	3.0	"	100.00		101	85-115			
Zinc	203.96	10	"	200.00		102	85-115			

**Matrix Spike (1503065-MS1)**

Source: E151203-03

Prepared: 03/24/15 Analyzed: 03/27/15

**EPA 200.7**

Aluminum	5391.3	100	ug/L	5000.0	151.25	105	70-130			
Barium	223.75	5.0	"	200.00	21.881	101	70-130			
Beryllium	52.422	3.0	"	50.000	U	105	70-130			
Calcium	25722	250	"	5000.0	19531	124	70-130			XM-1
Chromium	207.56	5.0	"	200.00	U	104	70-130			
Cobalt	102.33	5.0	"	100.00	U	102	70-130			
Copper	104.19	10	"	100.00	U	104	70-130			
Iron	5998.6	100	"	5000.0	498.37	110	70-130			
Magnesium	9552.8	250	"	5000.0	4054.3	110	70-130			
Manganese	567.46	5.0	"	500.00	25.431	108	70-130			
Molybdenum	107.42	10	"	100.00	1.6791	106	70-130			
Nickel	200.89	10	"	200.00	1.5894	99.7	70-130			
Potassium	16174	1000	"	10000	5706.0	105	70-130			
Silver	94.323	5.0	"	100.00	U	94.3	70-130			
Sodium	40446	1000	"	10000	29343	111	70-130			
Strontium	222.60	5.0	"	100.00	119.54	103	70-130			
Tin	108.52	15	"	100.00	1.9441	107	70-130			
Titanium	102.53	5.0	"	100.00	1.3243	101	70-130			
Vanadium	106.43	5.0	"	100.00	U	106	70-130			
Yttrium	101.60	3.0	"	100.00	U	102	70-130			
Zinc	238.62	10	"	200.00	28.597	105	70-130			



# UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

Region 4 Science and Ecosystem Support Division  
980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

## Total Metals (TMTL) - Quality Control

### US-EPA, Region 4, SED

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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#### Batch 1503065 - M 200.2 Metals Water

##### Matrix Spike Dup (1503065-MSD1)

Source: E151203-03

Prepared: 03/24/15 Analyzed: 03/27/15

##### EPA 200.7

Aluminum	5456.2	100	ug/L	5000.0	151.25	106	70-130	1.20	20	
Barium	222.93	5.0	"	200.00	21.881	101	70-130	0.368	20	
Beryllium	52.115	3.0	"	50.000	U	104	70-130	0.587	20	
Calcium	25350	250	"	5000.0	19531	116	70-130	1.45	20	XM-1
Chromium	203.04	5.0	"	200.00	U	102	70-130	2.20	20	
Cobalt	101.22	5.0	"	100.00	U	101	70-130	1.10	20	
Copper	101.93	10	"	100.00	U	102	70-130	2.19	20	
Iron	6104.5	100	"	5000.0	498.37	112	70-130	1.75	20	
Magnesium	9410.1	250	"	5000.0	4054.3	107	70-130	1.50	20	
Manganese	576.34	5.0	"	500.00	25.431	110	70-130	1.55	20	
Molybdenum	106.40	10	"	100.00	1.6791	105	70-130	0.956	20	
Nickel	197.03	10	"	200.00	1.5894	97.7	70-130	1.94	20	
Potassium	16340	1000	"	10000	5706.0	106	70-130	1.02	20	
Silver	92.119	5.0	"	100.00	U	92.1	70-130	2.36	20	
Sodium	39734	1000	"	10000	29343	104	70-130	1.78	20	
Strontium	219.22	5.0	"	100.00	119.54	99.7	70-130	1.53	20	
Tin	107.42	15	"	100.00	1.9441	105	70-130	1.03	20	
Titanium	104.74	5.0	"	100.00	1.3243	103	70-130	2.13	20	
Vanadium	105.06	5.0	"	100.00	U	105	70-130	1.30	20	
Yttrium	99.644	3.0	"	100.00	U	99.6	70-130	1.94	20	
Zinc	233.16	10	"	200.00	28.597	102	70-130	2.32	20	

##### MRL Verification (1503065-PS1)

Prepared: 03/24/15 Analyzed: 03/27/15

##### EPA 200.7

Aluminum	107.88	100	ug/L	100.00	108	70-130	MRL-1
Barium	4.7969	5.0	"	5.0000	95.9	70-130	MRL-1, U
Beryllium	3.0286	3.0	"	3.0000	101	70-130	MRL-1
Calcium	260.33	250	"	250.00	104	70-130	MRL-1
Chromium	4.9693	5.0	"	5.0000	99.4	70-130	MRL-1, U
Cobalt	4.9881	5.0	"	5.0000	99.8	70-130	MRL-1, U
Copper	9.3940	10	"	10.000	93.9	70-130	MRL-1, U
Iron	106.65	100	"	100.00	107	70-130	MRL-1
Magnesium	264.61	250	"	250.00	106	70-130	MRL-1
Manganese	5.1134	5.0	"	5.0000	102	70-130	MRL-1
Molybdenum	10.501	10	"	10.000	105	70-130	MRL-1
Nickel	10.179	10	"	10.000	102	70-130	MRL-1



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**Total Metals (TMTL) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1503065 - M 200.2 Metals Water**

**MRL Verification (1503065-PS1)**

Prepared: 03/24/15 Analyzed: 03/27/15

Potassium	951.85	1000	ug/L	1000.0		95.2	70-130			MRL-1, U
Silver	4.2691	5.0	"	5.0000		85.4	70-130			MRL-1, U
Sodium	963.83	1000	"	1000.0		96.4	70-130			MRL-1, U
Strontium	4.9657	5.0	"	5.0000		99.3	70-130			MRL-1, U
Tin	14.911	15	"	15.000		99.4	70-130			MRL-1, U
Titanium	4.4775	5.0	"	5.0000		89.6	70-130			MRL-1, U
Vanadium	2.1608	5.0	"	5.0000		43.2	70-130			QR-1, MRL-1, U
Yttrium	2.9969	3.0	"	3.0000		99.9	70-130			MRL-1, U
Zinc	10.515	10	"	10.000		105	70-130			MRL-1

**Batch 1503066 - M 200.2 Metals Water**

**Blank (1503066-BLK1)**

Prepared: 03/24/15 Analyzed: 04/13/15

**EPA 200.8**

Antimony	U	1.0	ug/L							U
Arsenic	U	1.0	"							U
Beryllium	U	0.50	"							U
Cadmium	U	0.50	"							U
Lead	U	1.0	"							U
Selenium	U	2.0	"							U
Thallium	U	1.0	"							U

**LCS (1503066-BS1)**

Prepared: 03/24/15 Analyzed: 04/13/15

**EPA 200.8**

Antimony	196.28	10	ug/L	200.00		98.1	85-115
Arsenic	206.76	10	"	200.00		103	85-115
Beryllium	50.492	5.0	"	50.000		101	85-115
Cadmium	51.197	5.0	"	50.000		102	85-115
Lead	213.71	10	"	200.00		107	85-115
Selenium	220.19	20	"	200.00		110	85-115
Thallium	207.68	10	"	200.00		104	85-115



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**Total Metals (TMTL) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1503066 - M 200.2 Metals Water**

Matrix Spike (1503066-MS1)		Source: E151203-03			Prepared: 03/24/15 Analyzed: 04/13/15			
EPA 200.8								
Antimony	196.62	10	ug/L	200.00	0.18298	98.2	70-130	
Arsenic	203.08	10	"	200.00	U	102	70-130	
Beryllium	49.298	5.0	"	50.000	U	98.6	70-130	
Cadmium	49.742	5.0	"	50.000	U	99.5	70-130	
Lead	215.86	10	"	200.00	0.40407	108	70-130	
Selenium	215.01	20	"	200.00	U	108	70-130	
Thallium	210.30	10	"	200.00	U	105	70-130	

Matrix Spike Dup (1503066-MSD1)			Source: E151203-03		Prepared: 03/24/15 Analyzed: 04/13/15					
EPA 200.8										
Antimony	198.86	10	ug/L	200.00	0.18298	99.3	70-130	1.13	20	
Arsenic	203.25	10	"	200.00	U	102	70-130	0.0853	20	
Beryllium	47.903	5.0	"	50.000	U	95.8	70-130	2.87	20	
Cadmium	49.620	5.0	"	50.000	U	99.2	70-130	0.246	20	
Lead	212.34	10	"	200.00	0.40407	106	70-130	1.64	20	
Selenium	216.05	20	"	200.00	U	108	70-130	0.481	20	
Thallium	209.80	10	"	200.00	U	105	70-130	0.240	20	

MRL Verification (1503066-PS1)				Prepared: 03/24/15   Analyzed: 04/13/15			
EPA 200.8							
Antimony	0.49953	1.0	ug/L	0.50000	99.9	65-135	MRL-
Arsenic	0.90814	1.0	"	1.0000	90.8	65-135	MRL-
Beryllium	0.48852	0.50	"	0.50000	97.7	65-135	MRL-
Cadmium	0.51938	0.50	"	0.50000	104	65-135	MRL-
Lead	1.0432	1.0	"	1.0000	104	65-135	MRL-
Selenium	1.9968	2.0	"	2.0000	99.8	65-135	MRL-
Thallium	0.52103	1.0	"	0.50000	104	65-135	MRL-



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**Classical/Nutrient Analyses (CNA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1503059 - C SM5210 BOD</b>										
<b>Blank (1503059-BLK1)</b>				Prepared: 03/20/15 Analyzed: 03/25/15						
<b>SM 5210B</b>										
BOD, 5 Day	U	2.0	mg/L							U
<b>LCS (1503059-BS1)</b>				Prepared: 03/20/15 Analyzed: 03/25/15						
<b>SM 5210B</b>										
BOD, 5 Day	209.00	2.0	mg/L	198.00		106	79-133			
<b>Duplicate (1503059-DUP1)</b>				<b>Source: E151203-04</b>		Prepared: 03/20/15 Analyzed: 03/25/15				
<b>SM 5210B</b>										
BOD, 5 Day	59.800	2.0	mg/L		59.000			1.35	20	
<b>Batch 1503060 - C SM5210 BOD</b>										
<b>Blank (1503060-BLK1)</b>				Prepared: 03/20/15 Analyzed: 03/25/15						
<b>SM 5210B</b>										
BOD, 5 Day, Carbonaceous	U	2.0	mg/L							U
<b>LCS (1503060-BS1)</b>				Prepared: 03/20/15 Analyzed: 03/25/15						
<b>SM 5210B</b>										
BOD, 5 Day, Carbonaceous	161.50	2.0	mg/L	170.00		95.0	81-119			
<b>Duplicate (1503060-DUP1)</b>				<b>Source: E151203-02</b>		Prepared: 03/20/15 Analyzed: 03/25/15				
<b>SM 5210B</b>										
BOD, 5 Day, Carbonaceous	101.00	2.0	mg/L		102.60			1.57	20	
<b>Batch 1503063 - C 335 Cyanide</b>										
<b>Blank (1503063-BLK1)</b>				Prepared: 03/23/15 Analyzed: 03/24/15						
<b>EPA 335.4</b>										
Cyanide (total)	U	15	ug/L							U
<b>LCS (1503063-BS1)</b>				Prepared: 03/23/15 Analyzed: 03/24/15						
<b>EPA 335.4</b>										
Cyanide (total)	101.60	15	ug/L	100.10		101	90-110			



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**Classical/Nutrient Analyses (CNA) - Quality Control**  
**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1503063 - C 335 Cyanide</b>										
<b>Matrix Spike (1503063-MS1)</b>		<b>Source: E151203-03</b>		Prepared: 03/23/15 Analyzed: 03/24/15						
<b>EPA 335.4</b>										
Cyanide (total)	99.887	15	ug/L	100.10	U	99.8	90-110			
<b>Matrix Spike Dup (1503063-MSD1)</b>		<b>Source: E151203-03</b>		Prepared: 03/23/15 Analyzed: 03/24/15						
<b>EPA 335.4</b>										
Cyanide (total)	102.83	15	ug/L	100.10	U	103	90-110	2.90	20	
<b>MRL Verification (1503063-PS1)</b>				Prepared: 03/23/15 Analyzed: 03/24/15						
<b>EPA 335.4</b>										
Cyanide (total)	14.744	15	ug/L	15.000		98.3	70-130			MRL-1, U
<b>Batch 1503070 - C 2540 Solids</b>										
<b>Blank (1503070-BLK1)</b>		Prepared & Analyzed: 03/24/15								
<b>USGS I-3765-85</b>										
Total Suspended Solids	U	4.0	mg/L							U
<b>LCS (1503070-BS1)</b>		Prepared & Analyzed: 03/24/15								
<b>USGS I-3765-85</b>										
Total Suspended Solids	99.600	4.0	mg/L	100.00		99.6	90-110			
<b>LCS Dup (1503070-BSD1)</b>		Prepared & Analyzed: 03/24/15								
<b>USGS I-3765-85</b>										
Total Suspended Solids	100.20	4.0	mg/L	100.00		100	90-110	0.601	10	
<b>Duplicate (1503070-DUP1)</b>		<b>Source: E151203-05</b>		Prepared & Analyzed: 03/24/15						
<b>USGS I-3765-85</b>										
Total Suspended Solids	2450.0	4.0	mg/L		2446.0			0.163	10	
<b>MRL Verification (1503070-PS1)</b>				Prepared & Analyzed: 03/24/15						
<b>USGS I-3765-85</b>										
Total Suspended Solids	4.0000	4.0	mg/L	5.0000		80.0	68-128			MRL-1
<b>Batch 1503101 - C 365.1 TPhos</b>										
<b>Blank (1503101-BLK1)</b>		Prepared: 03/31/15 Analyzed: 04/01/15								
<b>EPA 365.1</b>										



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**Classical/Nutrient Analyses (CNA) - Quality Control**  
**US-EPA, Region 4, SEDS**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1503101 - C 365.1 TPhos</b>										
<b>Blank (1503101-BLK1)</b>				Prepared: 03/31/15 Analyzed: 04/01/15						
Total Phosphorus	U	0.010	mg/L							U
<b>Blank (1503101-BLK2)</b>				Prepared: 03/31/15 Analyzed: 04/01/15						
<b>EPA 365.1</b>										
Total Phosphorus	U	0.010	mg/L							U
<b>LCS (1503101-BS1)</b>				Prepared: 03/31/15 Analyzed: 04/01/15						
<b>EPA 365.1</b>										
Total Phosphorus	0.26170	0.010	mg/L	0.26700		98.0	90-110			
<b>LCS (1503101-BS2)</b>				Prepared: 03/31/15 Analyzed: 04/01/15						
<b>EPA 365.1</b>										
Total Phosphorus	0.26970	0.010	mg/L	0.26700		101	90-110			
<b>Matrix Spike (1503101-MS1)</b>				<b>Source: E151005-09</b>		Prepared: 03/31/15 Analyzed: 04/01/15				
<b>EPA 365.1</b>										
Total Phosphorus	133.18	2.0	mg/L	0.50000	142.28	-1820	90-110			XM-1
<b>Matrix Spike (1503101-MS2)</b>				<b>Source: E151203-06</b>		Prepared: 03/31/15 Analyzed: 04/01/15				
<b>EPA 365.1</b>										
Total Phosphorus	2.8000	1.0	mg/L	0.50000	2.3000	100	90-110			XM-1
<b>Matrix Spike Dup (1503101-MSD1)</b>				<b>Source: E151005-09</b>		Prepared: 03/31/15 Analyzed: 04/01/15				
<b>EPA 365.1</b>										
Total Phosphorus	132.76	2.0	mg/L	0.50000	142.28	-1900	90-110	0.316	10	XM-1
<b>Matrix Spike Dup (1503101-MSD2)</b>				<b>Source: E151203-06</b>		Prepared: 03/31/15 Analyzed: 04/01/15				
<b>EPA 365.1</b>										
Total Phosphorus	2.8800	1.0	mg/L	0.50000	2.3000	116	90-110	2.82	10	XM-1
<b>MRL Verification (1503101-PS1)</b>				Prepared: 03/31/15 Analyzed: 04/01/15						
<b>EPA 365.1</b>										
Total Phosphorus	0.0090000	0.010	mg/L	0.010000		90.0	70-130			MRL-1, U
<b>MRL Verification (1503101-PS2)</b>				Prepared: 03/31/15 Analyzed: 04/01/15						
<b>EPA 365.1</b>										



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Classical/Nutrient Analyses (CNA) - Quality Control

US-EPA, Region 4, SESD

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1503101 - C 365.1 TPhos										
MRL Verification (1503101-PS2)				Prepared: 03/31/15 Analyzed: 04/01/15						
Total Phosphorus	0.0077000	0.010	mg/L	0.010000		77.0	70-130			MRL-1, U
Batch 1504034 - C 353.2 NO3-NO2										
Blank (1504034-BLK1)				Prepared & Analyzed: 04/09/15						
EPA 353.2										
Nitrate/Nitrite as N	U	0.050	mg/L							U
LCS (1504034-BS1)				Prepared & Analyzed: 04/09/15						
EPA 353.2										
Nitrate/Nitrite as N	0.50130	0.050	mg/L	0.50000		100	90-110			
Matrix Spike (1504034-MS1)				Source: E151203-06		Prepared & Analyzed: 04/09/15				
EPA 353.2										
Nitrate/Nitrite as N	0.56720	0.050	mg/L	0.50000	0.068200	99.8	90-110			
Matrix Spike Dup (1504034-MSD1)				Source: E151203-06		Prepared & Analyzed: 04/09/15				
EPA 353.2										
Nitrate/Nitrite as N	0.58180	0.050	mg/L	0.50000	0.068200	103	90-110	2.54	10	
MRL Verification (1504034-PS1)				Prepared & Analyzed: 04/09/15						
EPA 353.2										
Nitrate/Nitrite as N	0.053300	0.050	mg/L	0.050000		107	70-130			MRL-
Batch 1504037 - C 351.2 TKN										
Blank (1504037-BLK1)				Prepared: 04/09/15 Analyzed: 04/13/15						
EPA 351.2										
Total Kjeldahl Nitrogen	U	0.050	mg/L							
LCS (1504037-BS1)				Prepared: 04/09/15 Analyzed: 04/13/15						
EPA 351.2										
Total Kjeldahl Nitrogen	1.6985	0.050	mg/L	1.7200		98.8	90-110			



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## Classical/Nutrient Analyses (CNA) - Quality Control

### US-EPA, Region 4, SEDS

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
<b>Batch 1504037 - C 351.2 TKN</b>										
<b>Matrix Spike (1504037-MS1)</b>		<b>Source: E151203-03</b>		Prepared: 04/09/15 Analyzed: 04/13/15						
<b>EPA 351.2</b>										
Total Kjeldahl Nitrogen	2.3740	0.050	mg/L	1.0000	1.4260	94.8	90-110			
<b>Matrix Spike (1504037-MS2)</b>		<b>Source: E151409-02</b>		Prepared: 04/09/15 Analyzed: 04/13/15						
<b>EPA 351.2</b>										
Total Kjeldahl Nitrogen	19.814	1.0	mg/L	1.0000	19.248	56.6	90-110			XM-1
<b>Matrix Spike Dup (1504037-MSD1)</b>		<b>Source: E151203-03</b>		Prepared: 04/09/15 Analyzed: 04/13/15						
<b>EPA 351.2</b>										
Total Kjeldahl Nitrogen	2.5590	0.050	mg/L	1.0000	1.4260	113	90-110	7.50	20	QM-2
<b>Matrix Spike Dup (1504037-MSD2)</b>		<b>Source: E151409-02</b>		Prepared: 04/09/15 Analyzed: 04/13/15						
<b>EPA 351.2</b>										
Total Kjeldahl Nitrogen	21.376	1.0	mg/L	1.0000	19.248	213	90-110	7.58	20	XM-1
<b>MRL Verification (1504037-PS1)</b>		Prepared: 04/09/15 Analyzed: 04/13/15								
<b>EPA 351.2</b>										
Total Kjeldahl Nitrogen	0.031000	0.050	mg/L	0.050000		62.0	70-130			MRL-1, QR-1, U
<b>Batch 1504041 - C 350.1 Ammonia</b>										
<b>Blank (1504041-BLK1)</b>		Prepared: 04/10/15 Analyzed: 04/13/15								
<b>EPA 350.1</b>										
Ammonia as N	U	0.050	mg/L							U
<b>LCS (1504041-BS1)</b>		Prepared: 04/10/15 Analyzed: 04/13/15								
<b>EPA 350.1</b>										
Ammonia as N	0.98100	0.050	mg/L	1.0000		98.1	90-110			
<b>Matrix Spike (1504041-MS1)</b>		<b>Source: E151203-02</b>		Prepared: 04/10/15 Analyzed: 04/13/15						
<b>EPA 350.1</b>										
Ammonia as N	11.520	1.0	mg/L	1.0000	10.560	96.0	90-110			XM-1
<b>Matrix Spike Dup (1504041-MSD1)</b>		<b>Source: E151203-02</b>		Prepared: 04/10/15 Analyzed: 04/13/15						
<b>EPA 350.1</b>										
Ammonia as N	11.340	1.0	mg/L	1.0000	10.560	78.0	90-110	1.57	10	XM-1



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980 College Station Road, Athens, Georgia 30605-2700

D.A.R.T. Id: 15-0233

Project: 15-0233, Meridian POTW Diagnostic Inspection - Reported by Jeffrey Hendel

**Classical/Nutrient Analyses (CNA) - Quality Control**

**US-EPA, Region 4, SESD**

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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**Batch 1504041 - C 350.1 Ammonia**

**MRL Verification (1504041-PS1)**

Prepared: 04/10/15 Analyzed: 04/13/15

**EPA 350.1**

Ammonia as N

0.064000

0.050

mg/L

0.050000

128

70-130

MRL-1



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**Notes and Definitions for QC Samples**

U	The analyte was not detected at or above the reporting limit.
MRL-1	MRL verification for Potable Water matrix (Drinking Water)
QM-2	Matrix Spike Recovery greater than method control limits
QR-1	MRL verification recovery less than lower control limits.
XM-1	Sample background/spike ratio higher than method evaluation criteria